THE BUILDER

VOL. CI.—No. 3376. AUGUST 18, 1911.

CONTENTS.

	PAGE
The Surface Treatment of Concrete Buildings	179
The Position of the Expert Witness	180
Notes	180
The Story of the Bridge. II.—The Roman Genius (with Illustrations)	181
International Congress of Architects, Rome	183
Training and Rewards	183
The Royal Archæological Institute in South Wales	185
Proposed Restoration of the Church of St. Margaret, Upton, Norfolk (with Illustrations)	185
Books (with Illustrations)	186
General News	188
Correspondence (with Plan)	189
Fifty Years Ago	189
Editorial Summary	190
Meeting	190
Notes to Illustrations	190
Monthly Historical Review:—	
The "Passeggiata Archæologica" of Rome (with Illustrations)	191
London and Paris	193
Notes (with Illustrations)	194
The Building Trade:—	
Mediæval Builders at Work (with Illustrations)	196
Middlesex New Guildhall	197
General Building News	197
Projected New Buildings in the Provinces	198
The Preservation of Old Buildings	199
Law Report	201
List of Competitions, Contracts, etc., Open	202
London Councils	204
Obituary	204
Patents	204
Some Recent Sales	204
Prices Current	204
Tenders	205

Illustrations.

Cottages at Letchworth. Mr. Robert F. Johnston, Architect.

Kitchen, Stanton Harcourt Manor House, Oxford: Details. Measured Drawing by Mr. Sydney H. Miller.

Gate to Courtyard, Hills Castle, Kirkcudbrightshire. Measured Drawing by Mr. Sydney H. Miller.

Roman Bridge over the Ouvèze at Vaison, Vaucluse, France.

Roman Bridge over the Rhône at Viviers.

A General View of the Church and Monasteries, Bethlehem. (*See page* 187.)
From "The Church of the Nativity at Bethlehem." (Mr. B. T. Batsford.)

THE SURFACE TREATMENT OF CONCRETE BUILDINGS.

IN the art of architecture, which depends for its appeal so much upon the judicious use of the forms familiarised and sanctified by tradition, it is only with the greatest caution that we can break away from the methods of design based on materials that have been long in use. From time to time ingenious pleas have been put forward for the abandonment of all the "hackneyed" paraphernalia of design and the return to "first principles" of design based on the embellishment of construction. Even the logical temperament of such a man as Viollet-le-Duc did not prevent his coquetting with this idea. Despite the support this theory has received, it is now, we imagine, sufficiently discredited to render its further consideration superfluous. With the introduction of a new building material the point must always arise as to how far it can achieve expression independently of the traditional forms. It may take forms so nearly akin to the material it supplants as to render the transition easy and natural, but, on the other hand, it may involve such drastic changes of method as to necessitate a long experimental period before it comes into its own as a recognised means of attaining architectural effect. As with the Ionian Greeks, stone took time to assume the characteristic forms appropriate to its structural capacity, and as during the last century iron and steel were embellished with decoration borrowed from other materials, so at the present time the rapid development of concrete as a constructive material, due to the discovery of the monolithic combination of concrete and steel, presents to us the new problem of the range of possible architectural expression in this monolithic type.

In order to avoid confusing the issues, we may at once dismiss from consideration all structures compounded of reinforced construction and the pre-existing methods of building and confine ourselves to those formed of concrete cast in moulds, which will probably enclose, in some manner or other, steel tension members. In regard to these there can clearly be but three possible systems on which the surface left by the removal of the moulds can be treated, as, while each of these is capable of almost infinite variety, it must either be by addition, by simple inaction, or by subtraction that the surface will be determined.

The first of these includes all such methods as plastering, tiling, and other

means used for concealing in whole or in part the surface left from the forms. In the case of the second, the forms must themselves be of a character giving the desired surface. In the third the materials used must be such that the erosion or dressing off leaves a face suitable for exposure.

We do not propose to enter into the question as to which of these three methods may be regarded the more legitimate as a means of architectural expression; indeed, we very much doubt if such a question can be discussed with any profit. Such attempts have so frequently been made, only to result in the bottom being knocked out of conclusions, apparently most closely reasoned out, by the man of genius, who, having ignored them, achieves his aim by processes which are not at the time explicable on any argumentative basis.

As might have been expected, most of the experimental work in all three methods has been done in the United States. There, for some years past, pottery designers have been working out decorative ornament suitable in scale and colour for the embellishment of concrete buildings. A general surface of tiling or of marble slabs, recognisable as slabs and not simulating masonry, has also been accepted in the U.S.A. and on the Continent; while more recently combinations of eroded surfaces with added decorations have been attempted.

Again, in the matter of untouched surfaces we have done little here at home in regard to any substitutes for the usual boarded forms, though in cases efforts have been made to produce a surface as clean and uniform as possible.

In the U.S.A. sheet metal forms are in use, having lines or a pattern to mark the edges—a distinct effort to impress on the building the method of its construction. On these lines an infinite variety of effect appears possible, the only limit being the restraining influence of the architects' taste. It might be considered, for example, appropriate to stiffen thin metal forms by a stamped grooving or pattern, and this would leave its impress on the face of the work, suggesting a sort of diaper in relief; again, the metal forms might be made to hold a kind of coarse mosaic, producing a result akin to the *opus reticulatum* of the Romans. It is obvious that we have by no means reached the limits of possibility in this direction.

Of late, more attention has been given to the system of removing the surface left by the forms, and a number of methods have been used for this purpose. The face may be treated with dilute hydrochloric acid, which removes the cement and exposes the aggregate. The sand blast leaves a larger proportion of the cement matrix exposed, and the same may be said of both the hand and pneumatic hammer work. If it is possible to remove the forms within twelve hours, scrubbing with a steel brush produces a texture much better in its effect than that left by the pneumatic hammer, which picks out the aggregate so that the colour of the matrix only is shown.

In the case of all buildings proposed to be treated by one of the methods of erosion the selection of the aggregate is of the utmost importance; it should not be too varied in colour and its general tone should be considered; it may be of any shade desired, but a mixture is not only less effective in itself, but has the additional disadvantage that if not kept absolutely uniform the work will appear patchy and over variegated. The mixing and deposition of the concrete must also receive much closer attention than it would otherwise need, the aggregate requiring to be kept to an exact average in size throughout, and any ramming done with the greatest caution in order to avoid packing the stones closer in one part than another. Thus the preparation of concrete suitable for erosion is an operation demanding a degree of skill materially increasing the cost of the work.

No doubt in time reinforced concrete will take its own place, much as steel is doing at the present day, and will develop some legitimate mode of expression. The time will come in due course; to try to force the pace will only, in most cases, result in adding to the abortive efforts at architecture on "first principles" before referred to, but it is not amiss to keep in touch with any possible treatment for construction of this character, and among these the question of surface has a very definite importance. It will, of course, be readily recognised that it is by no means the only one, but as it appears to us to have been somewhat neglected in this country we have thought the moment an opportune one to draw the attention of our readers to the possibilities in this direction.

THE POSITION OF THE EXPERT WITNESS.

RECENT proceedings serve to remind us how rarely architects are asked to appear as witnesses, either before Parliamentary Committees or Courts of Justice, on matters that are purely architectural, or to give opinions on æsthetic questions.

Although it is customary for architects to appear as expert witnesses in the Courts, it is noticeable that they hardly ever appear in their essential character as skilled artistic constructors, but rather in that of surveyor, valuer, or authority on ancient lights, or party wall experts. It is not often that they are called upon to give evidence that might not equally well, or even better, be given by a building surveyor. To give evidence in the Courts on æsthetic questions of design is rare enough, to do so before a Parliamentary Committee is still more rare, and is, of course, a matter of even greater importance. We cannot pretend to be altogether satisfied with the present position of the architect under such circumstances, or with the procedure adopted to obtain his evidence. It would be more satisfactory from every point of view, we think, if, instead of allowing the promoters of a scheme to bring forward architectural evidence in its support, the Committee would appoint independent architects to study the whole question and report direct to the Committee itself.

This would ensure that every aspect of the case—the bad points as well as the good—would be placed before the Committee in an exhaustive and absolutely unbiassed and impartial manner which, by bringing the whole of the truth to the light, would not only be more in the interests of the public, but also in the interests of the architects themselves, as their position would be more independent, dignified, and acceptable.

Even in the ordinary Courts of Justice, where it is the custom for architects to appear as expert witnesses for one party or the other to private litigation, it would, we think, be more in the interests of justice, and more in accordance with the dignity of architecture, if the same rule held good, and architects only appeared to give information or opinions when called on by the Court. We should thus be spared the embarrassing sight of eminent experts on opposite sides cancelling each other out, and so doing nothing to further either the interests of justice or of the profession of architecture.

Whatever justification there may be for the present system where private interests are concerned it would probably not be disputed that where public interests are involved they are best served when the architect appears only as a servant of the public to place his knowledge and skill at the service of the State.

NOTES.

School Playgrounds. THE President of the Board of Education has appointed a Committee to consider possible reasons for the modification of the rigid minimum of 30 ft. super. of playground per scholar. It seems a very desirable thing that such questions should cease to be regarded as matters of routine with rules laid down as universally applicable, however varied the conditions may be. The attention of the Committee is drawn to the influence that the proximity of recreation grounds or open spaces may have on a decision as to the area of playground needed, and it will at once strike those who have their eyes on the future that this point is one in which our new town-planning schemes ought to be very helpful in providing the proper connexion between school buildings and public recreation grounds. A playground of this character, as distinct from the quieter park or reservation, is in its natural place in conjunction with the school buildings, and the uses of both are enhanced by their mutual proximity.

The Royal College of Art. THE Departmental Committee appointed by the Board of Education to consider the question of "functions and constitution of the Royal College of Art," has now issued its Report. This Report was heralded by a circular which was referred to in our issue of July 14 (p. 33), and which gave in outline the views now set forth more fully in the Report. The Committee expresses the opinion that the artistic tests for the admission of students do not result in securing the best, and it is pointed out that, in localities possessing a staple

industry utilising artistic work, designers trained in the district seem to be preferred to those from the Royal College of Art, and where local talent does not cover the whole ground bodies such as the Calico Printers' Association and the Wall Paper Manufacturers' Combine prefer to supplement their staff from abroad rather than from the Royal College. This neglect appears to be not wholly deserved considering the high standard shown in many of the designs produced at South Kensington, but the Committee feel that it is not without a reasonable basis and that—

"If the training of designers is to be kept in close relations to the industries it must, in the main, be carried on in the actual centres where those industries are located, and where alone the necessary equipment can, without unreasonable expense, be made available."

They recommend :—

"That the training of designers for the manufacturing industries should be specialised, and should be undertaken by provincial colleges of art, each of which, while continuing to provide a general education in art, should devote special attention to the needs of the dominant industry in its locality, and to this end should take steps to associate with its work representative manufacturers and artisans belonging to the industry;

That these provincial colleges should be conducted as departments of colleges which deal with the practical and the scientific as well as the artistic sides of the dominant industries in their localities;

That when a system of provincial colleges is established, the relation of the Royal College of Art to such colleges should be that of a school of advanced studies only, providing courses of one or two years' duration adapted to the individual needs of its scholars and in close relation to the Victoria and Albert Museum;

That the training of teachers of art, wherever undertaken, should be conducted under conditions which will entail a higher standard of general or technical as distinct from artistic attainments, and should include an adequate pedagogic preparation;

That Universities should be encouraged to provide suitable degree courses for intending artists, architects, and teachers of art."

In meeting the contention that the adoption of these recommendations would have the effect of lowering the status of the Royal College, the Committee claims that, as a post-graduate college in close touch with the local art schools, it will have for the first time a well-defined position as the culminating point of the whole system of industrial art-training in England.

Basements and By-laws.

A CORRESPONDENT in the *Times* draws attention to a by-law stated to have been passed by the Marylebone local authorities providing that a room habitually used as a sleeping-place, the surface of the floor of which is more than 3 ft. below the surface of the street level, is to be deemed a dwelling-house so dangerous or injurious to health as to be unfit for human habitation, and points out the effect this by-law will have on metropolitan houses where men-servants sleep in the basements. As this letter might lead to a serious misapprehension as to the character of the by-law in question, we quote the paragraphs bearing on the case:—

"Such room shall in every part thereof have at least 3 ft. of its height above the level of the surface of the street or ground adjoining or nearest to such room: Provided that if the width of the area hereinafter mentioned is not less than the height of the room from the floor to the said surface, or is not less than 6 ft., the height of the room above such surface may be ess than 3 ft., but not in any case less than 1 ft.

There shall be outside of and adjoining such room and extending along the entire frontage thereof and open upwards from 6 in. below the level of the floor thereof an area properly paved and effectually drained and at least 4 ft. wide in every part: Provided that the width of such area may be not less in any part than 3 ft., if the mean width of the area be not less than 4 ft."

Thus we see that its requirements are nothing more than is usual and reasonable, and though, of course, every hard-and-fast rule may appear to operate harshly in a few cases, it has long been recognised that the interests of a minority must not be permitted to stand in the way of enactments intended to benefit the community as a whole.

Trade Disputes and Picketing.

IN view of the recent strikes in London, and the dislocation of all business which has ensued, the circular addressed by the Home Secretary to the Chief Constables is a document of considerable interest to all employers of labour. It is hardly necessary to point out that the "peaceful picketing" permitted by sect. 2 of the Trade Disputes Act, 1906, entirely loses its character when acts of intimidation or violence are resorted to; but some of the observations contained in the circular are of considerable importance. Thus the Home Secretary points out that in distinguishing between peaceful picketing and picketing which amounts to intimidation, and which is an offence under the Conspiracy and Protection of Property Act, 1875, the number of persons engaged in the picket is an element to be considered. If it is disproportionate to what should be needed for lawful purposes the protection of the Trade Disputes Act may cease to apply. A second point of importance is, as the circular points out, that the Trade Disputes Act, 1906, gives the picket no right to enter private premises, or to insist on interviewing any workman in private.

The Civil Aspect.

THESE matters, the subject of the circular, relate to the criminal aspect of the question, but as regards the civil side we may draw our readers' attention to the decision of the House of Lords in Conway *v.* Wade, fully noted the *Builder*, August 7, 1909. That decision laid it down that the right of civil action was only taken away by the Trade Disputes Act, where there were no threats or violence; and that where contracts are broken, or there is interference with any trade or business then even a peaceful act can only be justified under the Act when it is done with a view to a dispute which is imminent or in support of an existing dispute.

THE STORY OF THE BRIDGE.

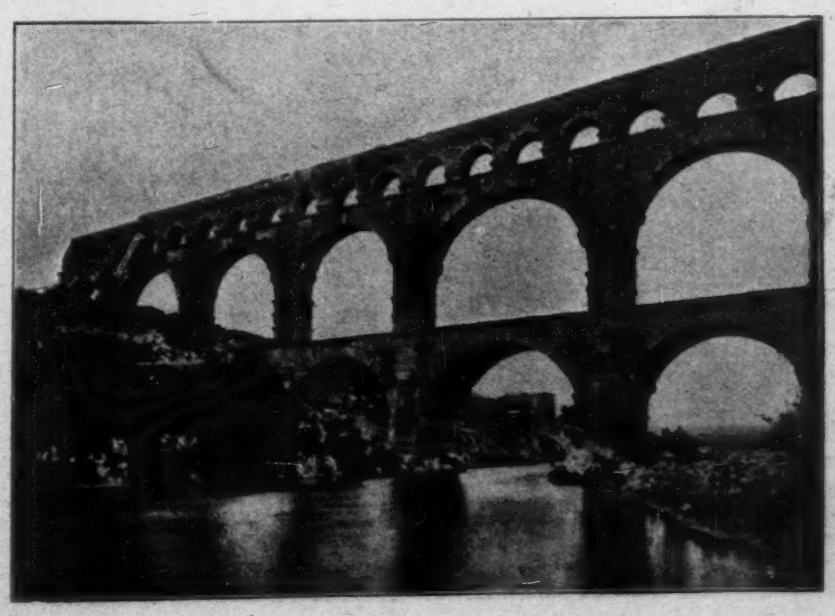
By WALTER SHAW SPARROW.

II.—THE ROMAN GENIUS.

ROMAN aqueducts and bridges, says an authority, "were really of a more engineering than architectural character, being in the main utilitarian." What does that mean? Was a Roman temple less utilitarian than a Roman aqueduct? Less needful as a part of the national life? But, when a lover of Greek art tries to write on the Roman genius, very absurd things are often uttered. Thus we are told by the same authority that the Pont du Gard, near Nîmes, in France, is built of "rough masonry." What next? Sandow, in comparison with a Tom Thumb, is a man of rough muscle and sinew, and if Tom Thumb is to be our standard of symmetry and grace, then Sandow is a masterful mistake in proportion and vitality. To describe the Pont du Gard as "rough" is to be a Tom Thumb in criticism.

Who knows why Anglo-Saxons are so reluctant to admire in art those very qualities that win victories and promise a great future? Why is it that our criticisms of art are sweetened with such words as "sentiment," "refinement," "gracious and gentle tact," when there are qualities of a higher kind, not only manlier, but more heroic? The Roman genius, in such magnificent monuments as the Pont du Gard, is the very tonic for which we ought to have a natural liking. Yet a professor of taste finds it "rough," just as bad climbers speak of the Alps disrespectfully.

When J. J. Rousseau visited the Pont du Gard he was awed into silence by the immensity of the three arcades. For the first time in his life he understood the grandeur of the Roman spirit in adventurous achievement. As he walked along each arcade the echo of his footsteps enabled him to hear the great voice of the builders. How had all the large stones been brought to this place, in a neighbourhood where quarries



Pont du Gard, Nîmes, France.

seem to have been unknown? And whence came the art that piled them up into a silencing design? Each stone was laid in its allotted place quite dry; neither mortar nor cement was employed, except as a lining to the water-channel on the third tier. Rousseau spent hour after hour in meditation, and then he remembered a humorous fact. He had been warned against the beautiful girls of Montpellier, and here he was alone with the Pont du Gard, and completely fascinated!

A classic tradition says that the stones in the Pont du Gard were joined together by iron bands. Is that true? The iron clamps, if employed by the masons, were not left on the surface of the stones, for there's no reference to them in the writings of modern students and travellers. That the Romans did use iron bars bent at the ends and fastened into huge stones with molten lead is proved by the ruins of the Roman bridge over the North Tyne at Chollerford, near Hexham. This was probably a bridge with a wooden superstructure, as voussoirs have not been found among the *débris* of stones. You will find full information in Dr. Bruce's book on "The Roman Wall," and in "An Account of the Roman Antiquities preserved at Chesters, Northumberland," by E. A. Wallis Budge.

The Pont du Gard is immense, its height being not less than 47 metres and 20 centimetres. The first tier has six arches, the second has eleven, and the third thirty-five. The first tier is 20 m. 10 cm. high and 161 m. 80 cm. in length; while the middle tier is 19 m. 40 cm. in height, and 257 m. 90 cm. long. Note, too, that the architectural centre of the design is not the real centre; this was determined by the course of the River Gardon, and we find it on the north in the second arch of the first bridge, the arch under which the river flows. It has a span of 25 m. 30 cm., while the neighbour on each side is smaller and narrower, having a chord of 19 m. 20 cm. The other arches of the first tier dwindle to 15 m. 75 cm. in span. As to the centre of the second story, it corresponds with the first, for the largest vault is above the river; it carries four little arches of the third arcade, while the others support only three. Thus the symmetry of the whole work must be judged in its relation to these facts. Some critics see nothing more than the unequal size of the arcades, when the real point is to find the *milieu architectural*, whence the design radiates, majestic and imperious. Fergusson said very well that the topmost arches give to the structure the same finish and effect that an entablature and cornice give to a long range of columns.

We cannot put a date on the Pont du Gard because there are differences of opinion in this matter. The historian of Nimes, M. Ménard, attributes the work to Agrippa, son-in-law of Augustus, who is said to have ordered its construction in the nineteenth year B.C. The style belongs to the Tuscan order, and all the arcades are groined and semicircular. The curve of every arch springs from a ledge, an impost resembling a cyma, about 50 centimetres high, and as much in projection. There are four groins in the arches of the first tier, and three in the second, while the third tier has either one or two. The water channel, placed on top of the third arcade, is 1 m. 30 cm. wide and 1 m. 60 cm. high; has side walls with perpent stones, and these bonders, 0 m. 80 cm. in size, bear cemented flagstones, a metre wide and having a thickness of 0 m. 32 cm. The channel itself is nearly blocked up with a thick deposit of lime, but when this substance is detached antiquaries find on the side walls a deep layer of cement painted red. The bed of the canal is a solid floor 0 m. 22 cm. in thickness, its component parts being small pebbles mixed with lime and gritty sand.

The Pont du Gard, like other antique monuments, has suffered from a competition between mankind and the centuries. The hand of time is difficult and ravaging, but men are more to be feared in their vandalism. At the end of the XVIIth century, during years of religious persecution, the Pont du Gard was often crowded with fugitives and with troops, who detached stones both from the piers of the second arcade and from the heads of the arches in the first tier. These injuries were all on the side that looked upstream. The aim was to enlarge the footway on the right-hand side of the piers, by means of a structure or platform corbelled out from new imposts. Along this road cavalry and artillery passed at full speed, shaking the bridge and causing the topmost tier to develop a curve in its horizontal parapet. At last the province of Lanquedoc interfered, and in 1670 careful restoration was begun. Only a small road was left open on the first bridge, and this was kept for horsemen and foot-passengers.

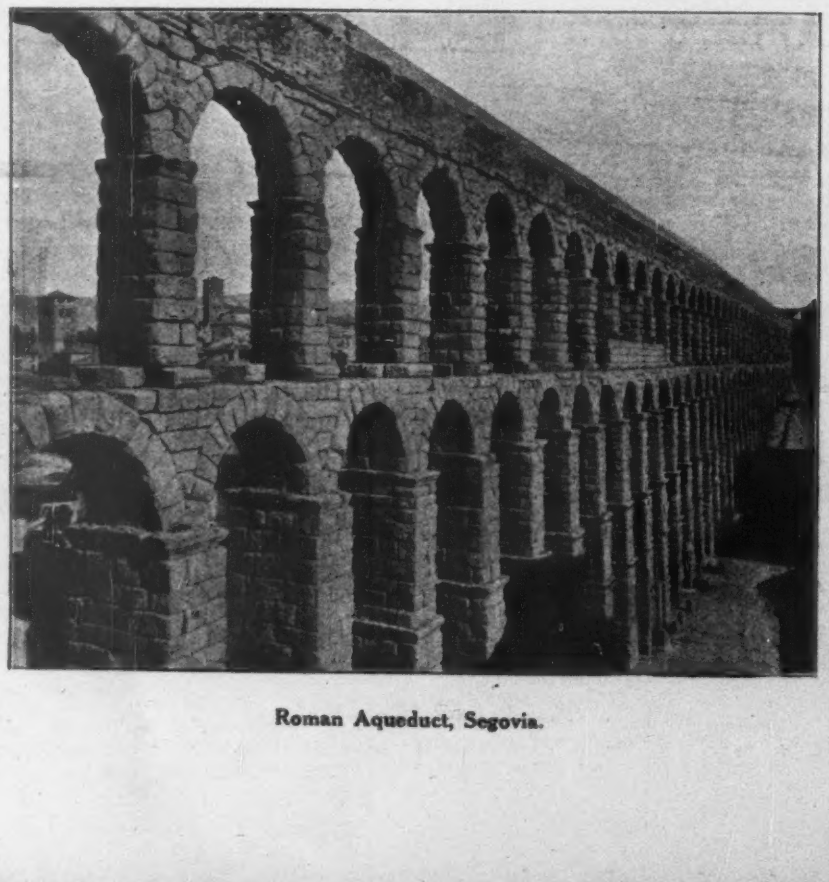
Years later, in 1743, the *états généraux* decided that a public bridge should be built up against the eastern side of the Pont du Gard; this was done without harming the Roman monument; and the new bridge, finished in 1747, may have been justified by its alleged necessity. There have been some modern restorations to the Pont du Gard, and one day the aqueduct itself may be brought into use again, in accordance with the wishes expressed by engineers during the last half-century.

We pass on now to another Roman bridge, at Vaison in Vaucluse. It is a bridge of stone over the River Ouvéze, and its span measures 30 metres. Vaison is built in part with materials from a Roman town, Vasio, capital of Vaconces, and its antique monuments are famous in France. Thus the church of Sainte-Marie, built between the Xth century and the XIIth, preserves some genuine Roman cloisters, and there are ruins of a Roman theatre. I give here a good photograph of the bridge, showing in detail the mason's craftsmanship.

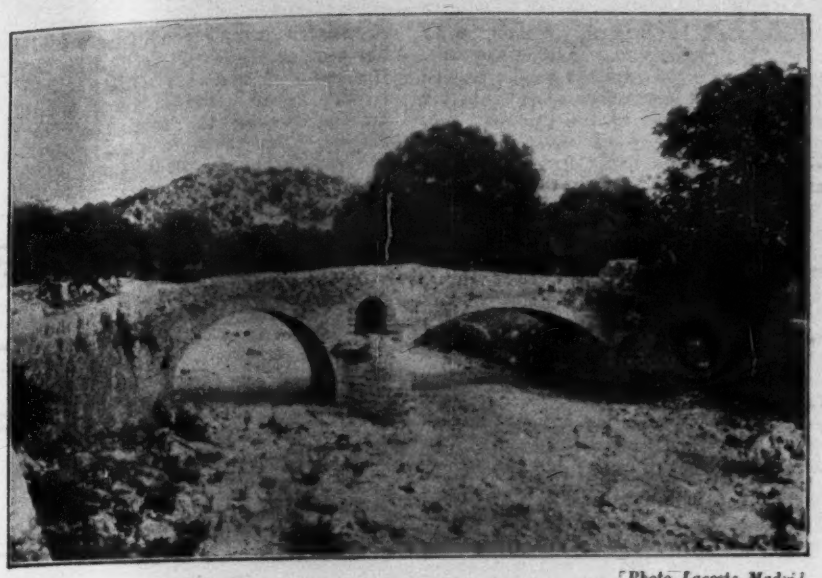
Another Roman bridge, not generally known, is found at Pollenza, in the island of Majorca. It has two arches. One is semicircular, and springs from the river-bed, while the other is a long segment arch stretching from an abutment wall on the bankside to the buttress guarding the pier. Above the buttress is a small archway to break the force of a flooding river. This is what the French call an *arche de décharge pour les hautes eaux*. To find it in a Roman bridge is interesting, for it gives a classic origin to the use of discharge arches in mediæval bridge-building.

Much larger and more impressive is the probable Roman bridge at Viviers, in France (*Ardèche*), built mainly with pebbles and small stones. Photographs show clearly the workmanship, and I give here a view of the west side. Viviers is only a village to-day, with less than 2,000 inhabitants; but in the Middle Ages it was a cathedral city, with a pride much greater than its population, which numbered 15,000. The Roman name for it was Alba Augusta, but its Roman civilisation was destroyed by the Vandals in the Vth century, and another type of society came to life amid the ruins, the old bridge remaining as a bond of distant union between past and present.

Viollet-le-Duc believed that the Romans in their colonies built few bridges of stone, preferring timber because it was always plentiful and easier to use. The old Gaulish methods of bridge-building, though primitive, were strong, and the practical Romans would not hesitate to employ native traditions and craftsmen. That there was no opposition to useful primitive methods is proved by the fact that the Gaulish craft of bridge-building has outlived the Roman domination by many centuries; it may be seen to this day in Savoy. Viollet-le-Duc drew attention to this circumstance, and said with truth that timber bridges in Savoy descended not merely from the workmanship described by Julius Cæsar, but from some remote age in prehistoric time. Note, too, with interest, that the timber piers are constructed like those at Srinagar, in Kashmir, which (as I mentioned in my first article appeal to us as primeval carpentry in all likelihood developed from the log foundations of lake-dwellings. It is quite an easy thing to make a bridge in the Gaulish fashion. You choose a river with steep banks, just wide enough for a single span. On each bank you make a bed of flat boulders, and then begin to raise up your timber pieces, using tree-trunks laid in a criss-cross manner. In order that the footway from pier to pier may not be too long, and therefore unstable, you increase the length of your horizontal logs as the piers rise in height; and because these logs on each side jut farther and farther across the water a rude arch is suggested by them, not a perfect arch, since the timbering of the footway gives it a flattened head. The inconvenience of a long footway in a wooden bridge may have suggested this method of pier-building to prehistoric craftsmen. If so, how are we to think of it in relation to the origin of arches? On the other hand, prehistoric timber piers may have had the same width all the way up; perhaps the progress of architecture in Roman and in Indian work suggested the use of longer logs to project



Roman Aqueduct, Segovia.



[Photo. Lacoste, Madrid.

Roman Bridge at Pollenza, Majorca.

over the water, and to make at last a jutting support under the timbers of a footway.

From the rarity of Roman bridges in Great Britain we learn that wood was the material used in early historic times. Do we possess even three or four Roman bridges with an authentic record? Here and there local traditions attribute a bridge to the Romans, but how many do you know having the support of distinguished antiquaries? A good many along the Roman roads have Romanesque traits, but I should like to find a true example of Roman craftsmanship. By my side I have a photograph of a supposed Roman bridge at Monzie, near Crieff, in Perthshire, with an arched footway overgrown with ferns and grasses. The type appears to be Roman, like the so-called Roman bridges near Bettws-y-Coed; but is the work as old as the XIIth century?

In my search for Roman bridges in Great Britain I have consulted Mr. C. S. Sargisson, who has photographed and studied a great many important bridges in England, and who has added many prints to my collection of photographs. It was he who first drew my attention to the Roman bridge of a single round arch near Colne, Clitheroe, concerning which there seems to be no doubt in the opinions expressed by antiquarians. Its simple design is finer in aspect than the "New Port" at Lincoln, which is unquestionably Roman. The strong arch-stones have no masonry above them, but the footway is protected by large cobbles which are easy to displace when they become outworn. The width of the footway may have been wide enough for a British war-chariot or a Roman cart, which were very narrow, seemingly.

Along the old Roman tracks in Lancashire there are many single-arch bridges having a Roman character, but without a stalwart air of authentic dignity. The one near Clitheroe looks genuine, while the others speak to me of a Roman tradition enfeebled in much later days by a different spirit in craftsmanship.

For the rest, many persons believe that Roman bridges have roadways either perfectly level, like that in the noble bridge across the Tagus at Alcantara, or else semi-circular over a single arch. But there is another type, and it may be studied in the five-arched bridge built by Augustus at Rimini, where the roadway ascends to the middle of the central arches, and then goes downwards. Mediæval architects borrowed this method of construction for reasons to be given later; and we shall see also how other characteristics descended from Rome to the Middle Ages and to our own times.

WORKMEN'S INSTITUTE, ABERTRIDWR.

This building, which was opened last week, has been erected at a cost of about 8,000*l.*, and includes a library. The architect for the work was Alderman Illtyd Thomas, and the contractor, Mr. John Williams.

INTERNATIONAL CONGRESS OF ARCHITECTS, ROME.

THE Ninth International Congress of Architects will be held in Rome from October 2 to 10. It was agreed at the Congress of Vienna that this meeting, the ninth of its kind, should be convened in Rome on the occasion of the festivities in Italy, organised to commemorate the fiftieth anniversary of the proclamation of Rome as capital of the kingdom. The eight preceding, of which the first was held in 1867, met in Paris, Brussels, Madrid, London, and lastly in Vienna.

H.M. the King of Italy has acceded to the wishes of the Committee in accepting the patronage of this Congress, and the Ministers of Foreign Affairs, of Public Instruction, and of Art have consented to act as honorary presidents.

By permission of the Syndic of Rome, the Congress will be inaugurated in the historic Hall of the Horatii and Curiatii. The following subjects will be considered:—

Reinforced concrete, the mode of using it in different countries, and how it may be applied to great buildings both as regards the technical and the decorative point of view.

Duties and rights of the architect with regard to his employer.

The technical and artistic education of the architect, and the architect's diploma. The exercise of his profession beyond the limits of his own country.

Considerations as to modern architecture.

The carrying out of architectural works for the State or other public bodies.

The desirability of a dictionary of comparative architectural terminology.

Foreign academies in Rome. (History course of study and works of the pupils. Their influence in their respective countries.)

Written communications and lectures are admissible on the following subjects:—

"Plans for the Laying out and Æsthetics of Towns"; "Building Regulations."

The Committee will be obliged to all those who will furnish written articles on these subjects, to be sent in before August 15 next, accompanied by a summary in one of the four languages to be employed in the discussions of the Congress, viz., French, English, Italian, and German.

The subscription for full members is 1*l.*, and for associates, being members of the family (wives, sons, or daughters) of a member, 12*s.* Both members and associates have the privilege of admission to:—A reception to be given by the International Association of Artists; a reception at the Capitol; a picnic (ottobrata); a garden party; and probably to other important receptions.

Members will be shown round Rome and the Exhibitions under qualified guidance. Excursions to the environs (including lunch), will be arranged at a small payment. There will be special banquets and a lunch for official delegates and their wives; also the usual closing banquet, for which tickets can be obtained by payment. Tickets of admission to the museums will be distributed.

A party of members and associates will leave London on September 29, the itinerary being as follows:—

Friday, September 29.—Leave London (Charing Cross Station), 9 a.m., by the short sea route Dover and Calais for Paris, continuing by evening express for Genoa.

Saturday, September 30.—Arrive Genoa, where the night will be spent.

Sunday, October 1.—Leave Genoa by morning express for Rome, arriving the same evening.

Monday, October 2, to Wednesday, October 11.—In Rome. Members will be able to return to London at their own leisure, within the validity of the tickets, *i.e.*, twenty-five days.

The fare will be 14*l.* 14*s.*, providing second-class travel ticket, with first-class on steamer from London, via Calais, Paris, and Modane to Rome and back; hotel accommodation; omnibus transfers; fees to hotel servants, railway porters, etc.; free conveyance of 56 lb. of baggage (while travelling with the courier); the services of a qualified courier.

The courier will return on the morning of October 11, and any members desiring to return at the same time will have the benefit of his services during the journey, and of free conveyance of baggage as above; but meals, hotel accommodation, fees, or transfers on the return journey are not included in the fare. The members would have to travel together on the outward journey to Rome.

Superior hotel accommodation can be provided at an increased fare, and independent travel tickets can be had at an extra cost.

Mr. John W. Simpson, Vice-President, R.I.B.A., is acting as Secretaire, Comité Permanent International des Architectes.

TRAINING AND REWARDS.

The ultimate guidance of study rests with those who bestow reward. The donkey is more effectively directed by those who offer inducement than by those who tweak his tail; and if our masters in their capacity as educationists may be regarded as tweakers, in their more potent function they are the controllers of our studentships and prizes. Now they must of necessity be men of standing, though not therefore qualified to judge, or—since that is begging the question—if qualified, their judgment may through knowledge of the power they possess be informed with a determination to uphold what they regard as desirable though perhaps contrary to—it may be better than—the common view. Students of architecture suffer little in precisely this way. It may seem at times that they do; results, external evidence,—may lead to that conclusion. But although the effect may be the same to all appearance, yet it proceeds from an opposite cause. It is not that those who are responsible for an award which, if not indefensible, is certainly susceptible of objection, are using their tremendous lever steadily with some concealed subversive intent. No. That were too purposeful. In vain do we seek the sinister in a merely muddled land. It is because, as far as one can judge, they are unaware of what they might do, that they have, as a body, no purpose at all, and must therefore act as seems to them best on each occasion, on a frankly opportunist basis, which is no basis at all.

Necessity of Organisation.

Now at a time when there is a consensus of conviction as to what is good, nothing more would be required, or, that is to say, so much would be impossible, opportunism being extinct. But at this present, when architectural aspiration in this country is pulling itself together again, but while the slime of the morass in which it has floundered is still, here and there, termed evidence of the afflatus, of romance, if not divine, some definite coherence must subsist in the matter of the bestowal of studentships, if the force therein is to be exerted for advance. But the jury must be composed of men of accepted standing, and standing has for most men come with time and the times are changing fast. Are they to abandon recognition of the ideals which fired their youth and bestowed their favour upon the fashion of the day? Some will stand fast, though silent perhaps, others will "keep pace with the spirit of the age," others there will be on our jury who lead the van of the movement. Is it to be supposed that awards of such a body can, in the mass, effect any inducement to progression, other than the indirect one of dissuading the conscientious student from spending time to no purpose?

What Happens.

The incoherent and æsthetically feckless condition of the jury—and by this we mean not only the Committees of the Institute, but the Alexander Thomson trustees, the Council of the Royal Academy, and those who sit in

judgment at all the other schools—the condition of this jury is sufficiently concealed. Its decisions become evident at different times and places, and in each instance the probability is that the students themselves and the small public immediately concerned are at least as liable to decisions based on superficial qualities as the assessors themselves. Then there are, we suppose, rare instances in which the palm goes to a design which may be plain, may be poor in detail, feebly or unfashionably drawn even, and yet be essentially right, and the numerous instances in which a design, vigorously presented is so held on all hands to be the best that few save the vanquished look into it at all, and some even of these do so but to stand, awed and agape.

Setting the Prob'em.

Preliminary to and yet integral with the wielding of our weapon for the fashioning of architectural education comes the setting of the problems in terms which indicate the nature of their solution. Even the name of the object to be designed alone counts for much. Plainly, from those who are asked to design a cow-byre a kind of architectural fervour is demanded other than that desirable in those who are to draw a cathedral. And either of these edifices, and all those kinds which lie between, may be required in terms which indicate that the student is to design "big" or on the contrary that the committee in question is steeped in regard for the petty practicalities of the problem.

The Two Principles.

There are two ways of setting a problem, or rather of conceiving it. The one says, "Let us give him a free hand." The result is: "Design a building on a perfectly flat desert of no particular climate or social associations, and which lacks the point of the compass, though it may indeed be considered to have a sun fixedly shining at an angle of forty-five degrees." The other considers "that limitations are so jolly helpful," and proceeds to set a problem in the nature of a puzzle, involving in the attainment of its one solution a concentration on the details of small planning, in excess of the customary tedium of actual practice. And it happens that this year, among the prizes open, without fee, to all British subjects, there are two good and two bad examples of each kind. For both the "Free hand" and the "helpful limitations" principles may be either right or wrong—one is prepared to prove either contention; but if they are wrong they may be justified, and if right equally betrayed, in application.

One Principle, the R.I.B.A.

To the first or *carte blanche* (or as white as may be in an imperfect world) school belong the two important studentships controlled by the Royal Institute of British Architects—the "Soane" and the "Tite." And of these two the "Soane," considered empirically as a detached subject, seems to us to be very well set indeed. A Guild Hall. It is to be placed in a park, some distance from the road, and the approximate requirements for the main parts are furnished, while the list of subsidiary rooms indicates the nature of the building without in the least hindering the glorification of design. Which is surely fitting as far as it goes, for the site is given in a public park—no place for the too precise limitations of a building line. For the "Tite," on the other hand, the student must design the central courtyard of a Royal Exchange covered with a roof—a legitimate region for adornment with classic forms, and one offering sufficient scope for design according to the terms of Sir William's will. But before the competitor can begin he must set himself the problem. True, some slight indication of the kind of rooms that must open into it is given; but for these the student will look up actual instances. Messrs. Matear & Simons' Cotton Exchange at Liverpool being perhaps the most suitable. But of what shape is this courtyard to be? Round, square, oblong, triangular, octagonal—any of these and others?—and of what dimensions? How shall any jury judge between them? A problem which is not set cannot be solved—a truism of which we regret the necessity of statement.

Instance of the Other.

The trustees of the Alexander Thomson Memorial and the Council of the Royal Academy on the other hand are decided that, even at some cost, the designs submitted for their adjudication shall have much in common to the end that their merits may be fairly assessed. And this view may be as right as the other; indeed as we state it in words it seems the better of the two. The proof of the principle lies, however, in the justice of its application. The Thomson prize is to be for a "Bridge, with approaches, spanning a river 500 ft. wide, with a terrace on either side, 50 ft. wide. Width and camber of the bridge, heights of road, terrace, and river—which is tidal (a legitimate difficulty), the range being stated—and a plan and section of the whole, that nothing may be doubtful, is given. The medium in which the drawings shall be made is prescribed. The intention of the trustees is defined. And yet the problem is a matter for spacious architecture, real enough, but shorn of the detail attendant upon actual practice. Some grand things should result.

Royal Academy Gold Medal.

How different is the subject for the Gold Medal of the Royal Academy! On a certain area round the three confined sides of a city site, to design a hall for a "city company." The accommodation required is precisely given and the disposition of the parts is specified to a degree which prevents variety of solution to those who obey the conditions. So that the task of the unfortunate students who are eligible to compete this year for a prize, in the administration of which, if of any at all, there is surely scope for large conception and some big splash of design, is to resolve as well as they can a series of Chinese puzzles in which given cubes must be somehow fitted together, with due regard in this case to the psychology of a beadle, the dignity of a clerk, and some misgiving concerning the type of lady who will sit in the stipulated gallery to watch her men folk feed. The clients have said, "Here is our site. We want a forecourt in the middle and it must be so big. We want our dining hall of these dimensions, and there is just room at one point to place it. We require such and such rooms besides, and you must place them here and here. In short, nothing remains for you but to fit them in (being careful of your cupboards), and provide the architectural titillation and see that there is plenty of it, for we are rich." Which resolves the struggle for the fattest architectural studentship in the country into an affair of who shall draw the best detail and decoration, of a style and degree not specified.

Advice to the Student.

But let the student not despair in the case of the Gold Medal and the Tite prize, or hope unduly because of the seeming excellence of the Soane or the Alexander Thomson. Let him, not too flagrantly violating the conditions, design in any style he pleases, with due deference to the contemporary modes, for which he should consult the works submitted in recent competitions, for this is politic. Let him not bother too much about the plan, so that it but have axes enough and symmetrical rooms. The correlation of plan and elevation need not imperil either, for drawings of each will be made on separate sheets. And as regards these sheets, let him compose each one pleasingly as a thing in itself. Above all must he *draw*. Let him display great slickness with his pencil, astounding ingenuity with watered ink; let him boldly flood colour and make shaded shadows in the Beaux-Arts way. And then, if the result be striking at twenty yards, let him send it in and abide the outcome, like a true sportsman, who, doing his best, yet waits on fickle fortune. For if there is any common quality to be discerned in the successes, worthy or unworthy, of recent years, it is that of the poster which hits the eye, or of the draughtsmanship that intrigues the emotion of wonder.

What is Lacking.

How the student who has any conception of the meaning of architecture—if indeed we may assume it to have any signification at all—how such a one must long for the real problem, adequately conditioned by those who understand. How must he desire in the case of the "Soane," for instance, not for more dimensions or a limit of cost, but for some indication of the nature of the place in which it is to be put. It is a Guild Hall, embodiment of the city, outcome of that city's history and symbol of its present state. The city is in an old country or a new, it is Latin or Teutonic, it is commercial or it is not, it is Northern or it is Southern. And these are only some of the main headings of the infinitely varying circumstances and conditions out of which the real architect will fashion his design, of the essential materials with which he must build. Yet not one of them is hinted at. In the case of the courtyard of a Royal Exchange, a much more prosaic matter, besides the lack of material conditions we noted above, the same absence of consciousness that anything more is required is evident; but not to quite the same extent, because there is less in the subject, commerce being a common and cosmopolitan an affair. Concerning the Bridge, one asks many of the questions that centre round the Guild Hall; and as regards the design for the hall of a city company, the necessity for knowing all those things and much more must beset our student hopelessly. How will it be possible to judge between the assembled designs? As we have pointed out, it must be mainly in detail and drawing that any differences between them lie. But the very craft or trade that this detail must glorify is in no way indicated. Our students are to believe that architecture is built of bricks made entirely with straw.

The Discrepancy.

Indeed they may find in the conduct year after year of these bequests for the advancement of architecture just that utter ignorance or carelessness of the quality that is vitality in the art, which by using their eyes in almost any of our streets they may see. Our student discovers that instead of working by the light of his synthetic concept, he being of a newer generation, he must, if he would profit by the studentships at all, endeavour to fashion in the chaotic atmosphere of an analytic age, something to meet the approval of those to whom that atmosphere is the breath of life. We do not wish to imply that that life was not estimable, that chaos was not inevitable, that analysis was not desirable in the extreme; but all the foregoing leads to insistence on our contention, that in architectural matters the intellectual confusion and centrifugal endeavour of the last three-quarters of a century is giving place to a synthetic concept based on a knowledge of all the styles to be built with the aid of all the mechanical discoveries of the age. Decorated building is not easily induced to lie, and, despite the able efforts of our leading architects, it has some sorry tales to tell posterity of the intellectual and spiritual condition of their one great client during the last hundred years. But now in the body politic there are signs that the turmoil is abating, that chaos is resolving; on every hand ideas of co-ordination and co-operation are gaining ground: the advance of that which is social, in a word, as opposed to that which is anarchic, is being recognised as the tendency of the period.

Conclusion.

The story of the rise and growth of this tendency will be told inevitably in due course in architectural terms. But it seems to us a pity that at a time when the co-ordination of architectural education and the consolidation of the profession is being so much discussed, and the regulation of work done by travelling students to the end that eventually an ordered survey of the world's architecture may be obtained, is already *en tapis* as a practicable thing, that the preliminary condition, what we have named the *ultimate guidance*, or the due manipulation of reward, should be wielded to no purpose save that of its own distribution.

"What would you?" will be the form in which objection to the gist of our remarks will be raised. We hope to be able to reply with the publication of a scheme, which, because it will be but an extension of what is already being thought, said, and done, will cause no great consternation.

THE RELATION OF BUILDINGS TO SITE VALUE.

In the House of Commons on Monday, last week, Mr. Cassel asked the Chancellor of the Exchequer whether his attention had been called to the view that buildings could not increase in value apart from a rise in the cost of material and labour, and whether calculations, for the purpose of arriving at site value on an occasion for collection of increment duty, proceeded on that footing. The Chancellor of the Exchequer.—The answer to the first part of the question is in the affirmative. As regards the second part, the method of arriving at the site value on an occasion is that prescribed by Section 2 of the Finance (1909-10) Act, 1910, and is fully explained in the Instruction to Valuers dated January 21, 1911.

THE ROYAL ARCHÆOLOGICAL INSTITUTE IN SOUTH WALES.*

TUESDAY, August 1, was devoted to the chief castles and fortified houses around Tenby. Leaving the Coburg Hotel in motor omnibuses, the party first visited the very perfect remains of Carew Castle. The history of this was briefly described by Mr. Edward Laws, who said that Carew formed part of the dower of Nesta ap Rhys, who married Gerald of Windsor early in the XIIth century. The oldest buildings on the site were, however, of the XIIIth and XIVth centuries. During the reign of Henry VII. considerable changes were made in the hall and entrance front by Sir Rhys ap Thomas, and again *temp.* Queen Mary by Sir John Perrott, who added the unfinished gallery along the north front. Some remarks were added by Mr. Hope, who pointed out that the "castle" was practically a fortified house, with the buildings arranged about a quadrangular court. The most ornamental details belonged to the changes made by Sir Rhys ap Thomas, and could be approximately dated by the heraldry on the hall porch, consisting of the arms of King Henry VII., between those of Arthur Prince of Wales, and his bride, Katharine of Arragon, to the end of the year 1501, or early in 1502. It is much to be wished that proper plans of this interesting house could be undertaken by some competent person. Outside Carew Castle stands a tall and very perfect Celtic cross with interlacing knotwork and an inscription. Monkton Priory Church was next visited and described by the Rev. D. Bowen. It consists of an aisleless presbytery and nave with tower between, with a detached chapel on the north, and once belonged to the Abbey of Seez, but afterwards to St. Albans. Until a few years ago the choir or monastic portion was separated from the rest of the church by a wall, and unroofed and ruinous. It has since been repaired and added to the parochial nave.

Pembroke Castle formed the next item, and was described by Mr. Hope. It occupies the western end of the long and narrow fortified ridge upon which Pembroke stands, and is placed upon a lofty rock nearly surrounded by water. A castle is said to have been founded here by Gerald of Windsor about 1105, but Mr. Hope was unable to recognise any earlier work than the end of the XIIth century or even later. The castle consists of an outer ward entered by a strong gatehouse, and of a smaller inner ward which also had its gatehouse, now destroyed. This was protected by an interesting guard-house on the west, with a chapel attached to its north side. The most striking feature after the gatehouse is the large and lofty detached round tower in the inner ward which formed the keep, and is almost unique as such in this country. North-east of it against the castle wall are the ruined remains of the great hall and other buildings, all of which deserve careful planning. The building in the outer ward in which Henry VII. was born probably stood on its western side, where extensive foundations remain buried. After luncheon, the journey was continued to Lamphey Palace, which was described by Mr. Laws as one of the seven residences of the Bishops of St. David's. The oldest parts may be of the XIIth century, but considerable additions were made by Bishop Gower (1328-47), and further minor changes by Walter Devereux, Viscount Hereford, to whom it was given by Henry VIII. The principal remains are those of the chapel and hall with a range of lodgings to the east, all raised upon cellars or subvaults, but the whole is so covered with ivy and creeping plants that it is difficult to distinguish details. Manorbier Church was next visited. It is of various dates, and chiefly noteworthy for the pointed barrel vaults to the nave and transepts, and for the panelled wooden canopy over the place of the altar in the north aisle of the nave. The tower occupies an unusual position on the north side of the chancel. Manorbier Castle is another fortified house, the origin of which is assigned to Gerald of Windsor, but contains nothing earlier than the end of the XIIIth century. The gatehouse and curtain walls and towers are still fairly perfect, but the main buildings have been much ruined, with the exception of the chapel and its sub-vault. Part of the buildings adjoining the gatehouse were converted into a dwelling by the late owner, Mr. J. R. Cobb. During the return journey to Tenby a halt was made at the charming house and garden at Lydstep, where the party was entertained at tea by Lord and Lady St. David's. In the evening, the annual general meeting was held, when the place of meeting for next year was discussed. The general feeling was in favour of Northamptonshire, with Market Harborough as a possible centre, but the final choice was, as usual, left to the Council. At the concluding meeting, which followed, votes of thanks were accorded to all those who had contributed to the carrying-out of a very pleasant and successful gathering.

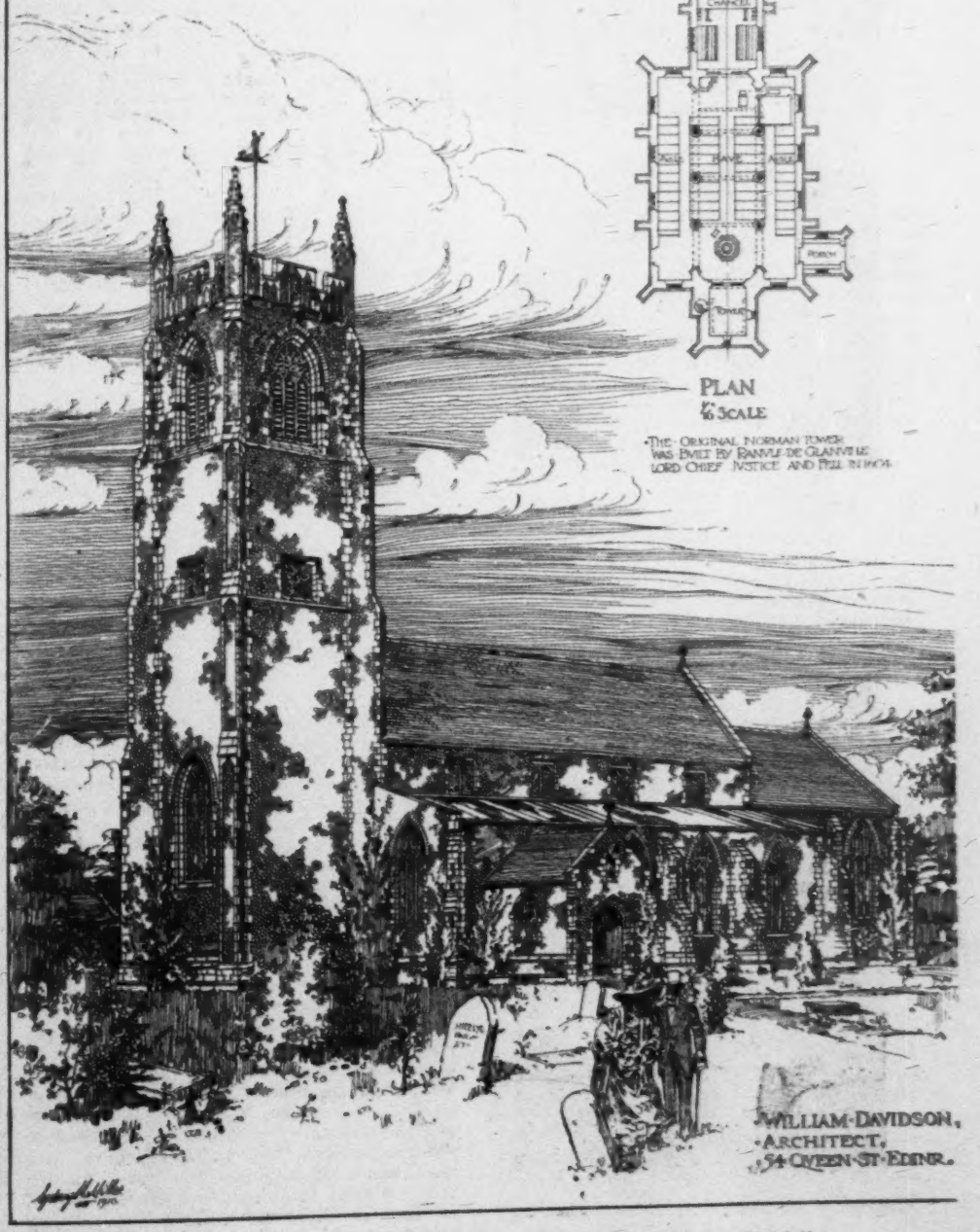
Wednesday, August 2, the last day of the meeting, was reserved for a visit to St. David's. This remote city was reached by way of a special train to Fishguard and Goodwick, and thence by motor omnibuses. The picturesque ruins of Bishop Gower's palace were first inspected under the guidance of Mr. Hope, who pointed out the arrangement of two halls, each with its great chamber, etc., about two sides of a courtyard, with a common kitchen in the angle; all raised above an extensive series of cellars. A similar example of two halls, but not all of one date as here, exists at Wells. The third side of the court contained lodgings and stabling, and the fourth side was closed by a wall with the gatehouse. The most noteworthy feature about the palace is the curious parapet, consisting of a series of open arches, surmounted by battlements, through which the steep-pitched roofs were taken. Other instances of this curious arrangement are to be seen at Lamphey Palace and Swansea Castle, both also Bishop Gower's work. After luncheon, the cathedral church was visited. The building is too well-known to make it necessary to describe the salient features pointed out by Mr. Hope, but he commented specially on the wooden screen which stands athwart the choir just east of the stalls. This is usually quoted as an unique example of a "sanctuary screen," but it is clearly not in its original position, which Mr. Hope showed was on the top of the steps across the first bay of the nave, just west of the *pulpitum* altars, to which it served as a fence screen. Mr. Hope also called attention to the four rare examples of effigies of priests in amices, albes, crossed stoles, and dalmatics (instead of chasubles). From the evidence of XIIIth and XIVth century seals there could be little doubt that these represented archdeacons.

After a thorough inspection of this remarkably interesting church and of the adjacent ruins of St. Mary's College, the party returned to Fishguard, and the South Wales meeting came to an end. The arrangements throughout were well planned and carried out, and though the attendance fortunately did not come up to the somewhat unwieldy numbers of late years, sufficient members and their friends assembled to ensure the meeting being in every way a most successful one.

* Concluded from page 162.

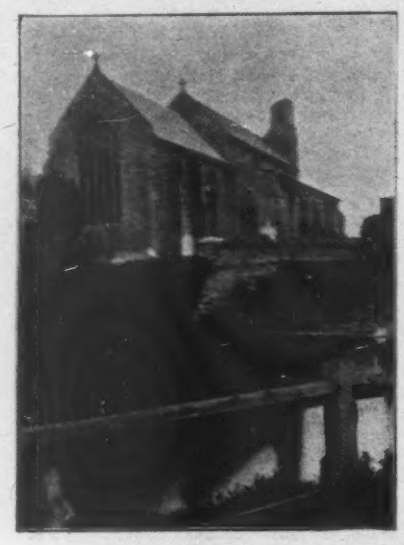
PROPOSED RESTORATION OF THE CHURCH OF ST. MARGARET, UPTON, NORFOLK.

THE original Norman church, which stood for about two centuries on the site of the present, was built by Ranulf de Glanville, Lord Chief Justice, and was founded in 1171.


PLAN
SCALE
THE ORIGINAL NORMAN TOWER WAS BUILT BY RANULF DE GLANVILLE LORD CHIEF JUSTICE AND FELL IN 1604
WILLIAM·DAVIDSON, ·ARCHITECT, ·54·QUEEN·ST·EDINR.

Proposed Restoration of the Church of St. Margaret, Upton, Norfolk.
Sketch from S.W. showing New Tower.
(Royal Academy Exhibition, 1911.)

Whether this church was destroyed by lightning, fire, or simply fell into hopeless



Church of St. Margaret, Upton.

decay is not known, but when the Norman church was removed the tower was retained.

The present Perpendicular nave and chancel, which are fine in proportion, and con-

Church of St. Margaret, Upton.
Ruins of Norman Tower.

tain several features of considerable interest, were built against the Norman tower. There is evidence to suggest that the Norman tower

Church of St. Margaret, Upton: The Font.

at this time was heightened by the addition of another story in the style of the period.

The tower fell in 1604, and has since remained in a ruined condition; the western arch was built up to exclude the weather from the nave, and a lean-to brick belfry was added later.

The window tracery of the nave aisles and chancel is of fully-developed Perpendicular. The font must have existed in the Norman church for a short period, as it is slightly earlier in design than the nave, and is a good example of late decorated font of the Norfolk type.

Among other interesting remains are the old pulpit (now in the north aisle), several cusped pew fronts, the dado of the rood screen with its painted panels, and in the Lady Chapel and Chapel of St. Thomas à Becket there are two piscinas with good tracery. There are still to be seen the remains of several painted consecration crosses and the basin of a Norman piscina which was discovered in 1885.

The chancel is 40 ft. 6 in. by 19 ft., and the nave is 68 ft. 9 in. by 20 ft. 6 in., the aisles being about 12 ft. wide.

The chancel was restored by the Ecclesiastical Commissioners in 1879, and in 1885 Mr. A. S. Hewitt, A.R.I.B.A., of Great Yarmouth, restored the nave and aisles, while three years later the south porch was restored and the nave reseated.

The present proposed restoration consists mainly in the building of a new west tower 18 ft. square over all (with angle buttresses and crocketed pinnacles) and about 85 ft. high, the lines of which have been inspired by local examples, and it has been carefully designed to harmonise in scale and detail with the existing church.

It is proposed to open up the western arch and to insert a western screen and ringers' gallery. It is also intended to restore the rood screen by putting in tracery and cornice up to the original height, which can be traced by marks on the chancel piers. Should the money be forthcoming a peal of three bells will be hung in the tower and the east window filled with stained glass depicting scenes from the life of St. Margaret.

The scheme of restoration has been prepared by Mr. William Davidson, architect, of Queen-street, Edinburgh, who has made a long and careful study of the best examples of ecclesiastical architecture and decorative art in East Anglia.

BOOKS.

The Castles and Walled Towns of England. By ALFRED HARVEY. With 46 illustrations. (London: Methuen & Co., Ltd., Essex-street, W.C. 7s. 6d. net.)

THE author's aim in the 270 pages of this work has been "to give in a short compass a general view of the subject of the English Castles, more particularly from their purely business aspect as places of residence and defence; in the latter case, not only as individual fortresses, but also as members of a more or less consciously scientific system, political and military. . . . The plan followed in the description of the different classes of edifice under consideration is firstly to give a general view of the type and its component parts from existing data, and then to describe more fully three or four illustrative examples of each class, taking the examples, as far as is consistent with suitable illustrations, from the less generally known or visited castles. In the two chapters on keepless castles, the plan is departed from in that the illustrative examples are omitted, as they differ so little from the type and from each other that separate descriptions are unnecessary. In the last two chapters, those dealing with walled towns, the plan is departed from in a contrary direction, and the author has attempted to give a short note, not only on every town which retains any vestige of its mural defences, but also on those whose walls have entirely perished." These remarks, quoted from the preface, give a very good idea of the scope of the work, and the author's plan, which has resulted in the production of an interesting book on a most interesting subject. The first of the ten chapters is on the origin and development of the English castle, the Norman invader being held responsible for the introduction of castles, in our sense of the word, into England. Godwin, in his "English Archæologist's Handbook," divides the English fortresses into the four following groups, *i.e.*:— (I.) Norman, the characteristic being the keep; (II.) Edwardian, the characteristics being the hall of audience or ceremony, and the introduction of inferior towers and overhanging turrets, called bartisans, and the more frequent use of the portcullis; (III.) palatial, in which the commodious luxury of the palace was combined with the defensibility of the castle; (IV.) Castellated mansions, in which the strength of the castle became subordinate to the beauty and convenience of the mansion. Mr. Harvey thinks that the best classification is one based on the system of defence adopted, the presence or absence of the keep dividing the whole series of castles into two main types—(I.) castles with keeps, and (II.) keepless castles.

Other chapters deal with the geographical and topographical position of English Castles, the Norman Castle, the Circular Keep, Keepless Castles, the Concentric Castle, Later Castles, and Mural Defences of English Walled Towns, while an appendix contains a list of English Castles. The volume contains several excellent photographic plates and some plans in the text expressly drawn by the author, whose painstaking and able work, evidently involving a great deal of research, should appeal to many besides antiquarian readers.

The Law Relating to the Paving and Sewering of New Streets and Private Streets (in London and Elsewhere) Under the Metropolis Management Acts, the Public Health Acts, and the Private Street Works Act, 1892. By JOSHUA SCHOLEFIELD, Barrister-at-Law, and GERARD R. HILL, M.A., Barrister-at-Law. Second Edition. (London: Butterworth & Co. 1911. Pp. 236 and Index. 10s. 6d. net.)

ALTHOUGH this is a second edition of a work by the same authors, we see from the Preface that the first edition was confined more especially to the Private Street Works Act, 1892, so the present volume, which deals with the law not only under that Act, but also under the Metropolis Management Acts and the Public Health Acts, marks a new departure. There are also chapters on such subjects as "Highways Repairable by the Inhabitants at Large"; the incidence of paving expenses as between landlords and tenants, etc., and an authoritative work of this nature should prove extremely useful. Mr. Scholefield is an editor of "Lumley's Public Health," and Mr. Hill is an editor of "Arnold's Law of Muncipal Corporations," so the authors bring considerable experience to their work, and, as might be expected, they appear to have produced a highly practical volume. We find the very recent case Wandsworth Borough Council v. Golds, upon which we have recently commented in our columns, incorporated in its pages, and the work seems to have been brought well up to date. The material sections of the statutes are printed in the appendices, with the forms and precedents; there is a table of statutes and a table of cases, but in this latter table we could wish that the references to the reports had been appended to the names of the cases.

The authors express the hope that their work may not only prove useful to lawyers and officials, but also to property owners and agents, and we think they have accomplished their object. This appears to be a valuable text-book and handbook to this unfortunately-complicated subject.

Notes on the Law of Private Street Works under the Public Health Acts. By J. B. REIGNIER CONDER, a Solicitor of the Supreme Court. (London: St. Bride's Press, Ltd. Pp. 114. 3s. 6d. net.)

IT is surely a commentary on our system of legislation relating to what may be termed domestic matters that the owner of house property (to say nothing of the occupiers of his houses) has to thread his way through a maze of statutes and decisions to ascertain his rights and his liabilities in connexion with questions which may arise every day. Such, however, being the case, text-books dealing with what on the face of them might be deemed to be simple matters have become an actual necessity, although the owner of property is lucky if the text-book suffices and

Interior of Nave, looking East.

From "The Church of the Nativity at Bethlehem." (Mr. B. T. Batsford.)

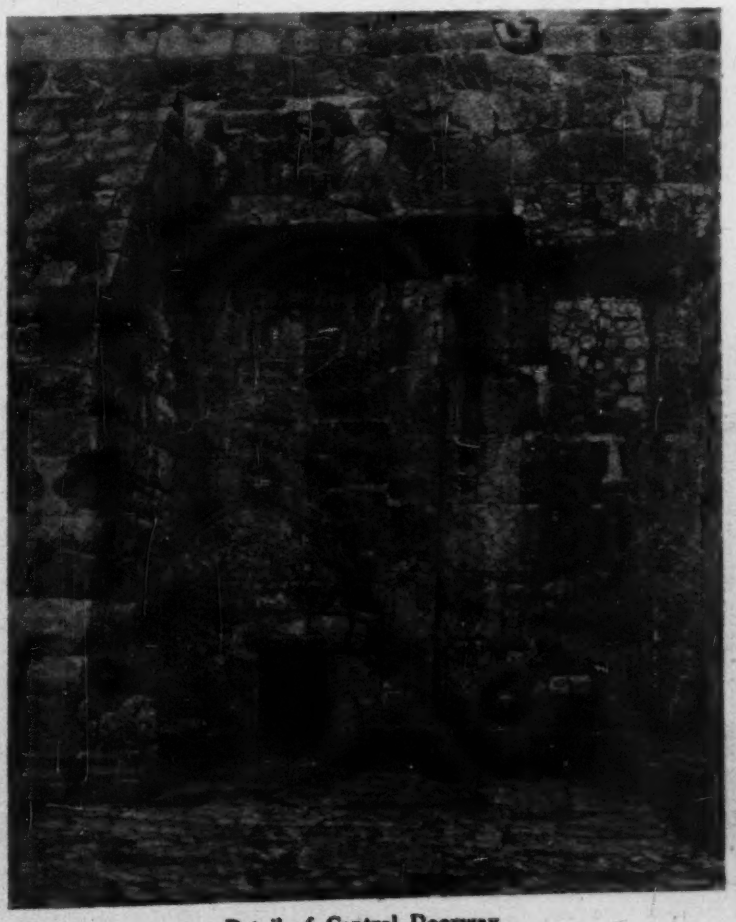
he is not driven to consult a specialist. The work before us deals with one of such subjects, private street works under the Public Health Acts and the Private Street Works Act, 1882, but not with the Metropolitan Management Acts; the statements in the text are supported by decided cases, with references printed in the text; there is also a table of cases and an index, and it should prove a useful handbook. We find the recent decisions included, and the work seems to have been carefully prepared. On page 2, however, there appears to be a slip, as a judgment of Sir George Jessel's is made to appear to have been delivered "in a later case" to two cases cited, whereas in fact it preceded them by many years.

The Church of the Nativity at Bethlehem. (London: B. T. Batsford. Price 30s. net.)

THIS book, the first important publication of the recently-founded Byzantine Research and Publication Fund, is a complete and concise account of an architectural work practically unknown to the British public, and hitherto only partially and incorrectly surveyed by former travellers, who allowed the peculiar difficulties placed in the path of any person studying in the church to outweigh their regard for accuracy of reproduction.

The Byzantine Research Fund seem to have spared no pains in this respect, and has gathered together all that is known about the building, presenting the result in an interesting series of separate chapters contributed by various members of the Fund, and illustrated by careful measured drawings of the church and its mosaics by Mr. W. Harvey, who spent three months in the winter 1909-1910 in Bethlehem engaged on the work. Students of architecture will be interested in the representation of a building of noble proportions and structural fitness in style unfamiliar in England, and once officially condemned by Gwilt as debased Roman architecture, though with how little justice may be judged from the illustrations of the book.

The report written by Mr. W. Harvey at Bethlehem on the present state of the building and the general historical and descriptive account by Professor Lethaby both argue strongly in favour of the Constantinian date of the church as against the supposition that it is of Justinian's time. The beauty of the place (now accurately measured probably for the first time) tells its own tale of a structure designed as an organic whole. Professor Lethaby points out that the building belongs to a style of architecture which should be termed Early Christian rather than Byzantine, the church forming a connecting-link between the Classic art of Rome and the structural works of the Byzantine Empire,



Detail of Central Doorway.

From "The Church of the Nativity at Bethlehem." (Mr. B. T. Batsford.)

then commencing its ascendancy. The carving of the massive capitals, for instance, is intermediate between the elaborate and richly-modelled Acanthus of Classic times and the incised surface carving of the Mediæval art of the Near East. The church reflects in its structure the youthful vigour of the new Christian religion, and, while retaining much that is obviously due to the architectural tradition of Pagan Rome, exhibits in some of its details the effects of tendencies and strivings towards a style more purely constructional in its expression—tendencies which produced for us in England the towering Gothic cathedrals and in the earthquake-shaken Levant the reposeful domes of the Byzantine style.

The remains of the extremely interesting mosaic with which the church was furnished in Crusader time in place of original mosaics, then already fallen into decay, receives adequate attention in a separate chapter by Mr. O. M. Dalton, and in two coloured plates and several illustrations in the text. Mr. Dalton's remarks upon the Sassanian origin of the strange wing-like forms in the decorative foliage are very welcome, as anyone seeing these unusual *motifs* would be at a loss how to account for them. The inscriptions contained in the mosaics have been translated and compared letter by letter with the versions published by Quaresmius and De Vogüé.

A part of the book which is quite fascinating is the chapter dealing with the pilgrims' accounts of the church and its legendary associations, arranged in chronological order by Mr. H. A. A. Cruso, a chapter which, though strictly archæological, is full of quaintness and romance, and should appeal to the general public, the mediæval language of some of the English pilgrims harmonising sweetly with the romantic associations of the church, in which a Crusader King was crowned. At the end of the book is a short account by Mr. A. C. Headlam of the grotto of the Nativity itself and the tradition linking it with the birth of Christ. Although the evidence must be regarded as inconclusive, the tradition is shown to be one of very respectable antiquity, and is strengthened by the fact that under Pagan Roman Emperors the cave was purposely desecrated and the worship of Venus and Adonis instituted in place of the Madonna and Christ.

The book is essentially one to stimulate curiosity, both text and illustrations exhibiting much that is strange. The photographs at the beginning and end of the Preface, which show some of the surroundings of the church, present an appearance differing entirely from anything that could be seen in England, a remark which applies with almost equal truth to all the illustrations in the book.

The extraordinary interest of the building is suggested by several passages of the text:—"The tints of the mosaic, though gorgeous and rich in the extreme, are delightfully blended in the patternwork to produce a lavish but perfectly harmonious effect." And in another place:—"It was nobly planned on the large, quiet lines of Classic art and splendidly adorned by a complete scheme of late Byzantine mosaics, gorgeous and glittering, and yet 'severe as the gravity of holy things.'" A pilgrim of 1484 describes it:—"A marvellous fair church and a right sumptuous work; there be 1,111 rows or ranges of pillars throughout the church of the finest marble that may be, not only marvellous for the number, but for the outrageous greatness and fairness thereof. I never saw nor heard of a fairer little church in all my life."

One closes the book with a feeling that much that is new and interesting has been admirably displayed, and thanks are due to the Byzantine Research Fund and to the editor, Mr. Robert Weir Shultz, for the good work done in making clear something of a little understood style of architecture. It is to be hoped that the support of the public will assist the Fund to continue its useful work.

Our illustrations, reproduced by the permission of the Byzantine Research Fund, show something of the character of the book and the place it describes.

South Transept, looking North-East.
From "The Church of the Nativity at Bethlehem." (Mr. B. T. Batsford.)

A Handbook of Testing Materials. By C. A. M. SMITH. (London: Constable & Co. 6s. net. Pp. 280; 140 illustrations.)

ALTHOUGH written primarily for students of engineering, this review of the science of material testing cannot fail to interest all who are associated with constructional work, and should prove a valuable introduction to a subject which has not received sufficient attention.

After some useful counsel as to the conduct of the experiments and a necessary chapter on the properties of materials, the author describes at some length the types of machines in use for testing under the various stresses, and the methods adopted for gauging the resultant strains. The descriptions are accompanied by a large number of diagrams, from which all unnecessary detail has been omitted, and with the help of which the text descriptions are perfectly easy to follow.

There are valuable chapters on the testing of stones, cements, reinforced concrete, and timber, and an appendix containing results of previous experiments and other useful information. The book should quickly find a place among the accepted engineering handbooks.

GENERAL NEWS.

Professional Announcement.

The partnership heretofore subsisting between Mr. W. Charles Cloete Hawtayne and Mr. G. Alexander Zeden, carrying on business as consulting engineers at No. 9, Queen Street-place, under the style or firm of Hawtayne & Zeden, has been dissolved by mutual consent as and from June 30, 1911. All debts due to and owing by the late firm will be received and paid respectively by Mr. Hawtayne, who will continue the business in his own name.

School Playgrounds.

The President of the Board of Education has appointed a Departmental Committee to inquire and report:—

(*a*) Whether it would be consistent with due regard to educational and hygienic considerations that the minimum standard of playground accommodation for new public elementary schools prescribed in the building regulations of the Board of Education, viz., 30 ft. per head of accommodation, should be modified or adjusted according to the size, design, or situation of schools, the proximity of recreation grounds or open spaces, the density of population, the cost of land, or otherwise.

(*b*) How far it is possible or desirable to define more precisely the standard of playground accommodation which the Board of Education will require under the code of Regulations for Public elementary schools in the case of existing schools, or to regulate the practice of the Board of Education in dealing with cases in which the playground accommodation is considered to be insufficient.

School Planning in Kent.

The Kent Education Committee report that with a view to reducing the cost of new buildings they are experimentally introducing 11-in. hollow walls, instead of 14-in. solid or 16 in. hollow walls, as required by the regulations of the Board of Education. The Board of Education state that they have been impressed by the inconvenience of the method of planning elementary schools with the classrooms grouped round and opening directly out of a central hall, as by this arrangement it is not possible to use the hall to its full advantage for physical exercises, combined singing lessons, and other purposes involving noise without causing disturbance to the classes in the adjoining rooms. The Board are, it is understood, now unwilling to pass plans of schools so designed, and the Committee's Architect is now planning schools according

to the "pavilion" type, with an open court-yard between the classrooms, and a hall placed at the end of the building and forming a connecting link between the two wings. The new plan allows each classroom to have cross-ventilation.

Shadwell Park, and King Edward VII. Memorial.

A model prepared by Mr. W. Reynolds-Stephens is deposited in the tearoom of the House of Commons. The designs provide for the laying out of a riverside park on the Fish Market estate area of about 8 acres, whereof 7 acres belong to the Corporation of the City and 1 acre to the London County Council. Mr. Reynolds-Stephens devotes all the river frontage, down-stream from the shaft of Rotherhithe Tunnel, to a paved terrace, 330 ft. long, having at its middle point a water fountain, from which rises the pedestal of a figure of Peace, with emblems, and holding a plaque with a portrait of King Edward. The fountain, symbolical of Great Britain as a maritime nation, will embody presentments of the Houses of Parliament, St. Paul's, the Tower, and Greenwich Hospital; around the edges of its four half circles are the four quarters of the globe with shipping. The rising ground to the north, extending to Glamis-road and the High-street, forms the park, with swimming-baths along its south-west side, and children's playing-sands to the south-east. The market cost the Corporation 140,000*l*.

Architectural Treatment and its Relation to Cost.

Mr. T. Forbes Maclennan, A.R.I.B.A., recently read a short paper, at Edinburgh, on "Architectural Treatment and Its Relation to Cost." His remarks were addressed rather to the man in the street than to architects or students. He put in a plea for architectural treatment of the new towns or suburban centres which might develop under the Town Planning Act. He laid stress on the fact that architectural treatment was not mere embellishment; it might even be possible without any ornament whatever. The great architects of last century gradually lost their influence because of their attempts to adapt the architecture of bygone ages to almost every type of modern building. He instanced the Edinburgh Royal High School, magnificent in its external effect, but being so monumental as rather to express a national gallery than a day school, and, worse still, the major portion of the valuable south front had not a single window in it to let in sunshine and air. He then criticised modern work—particularly the practice of placing heavy columns on the upper stories resting apparently on a weak flat arch or merely brass astragals and plate glass. Even in the American sky-scraper the piers on the street floor usually satisfied the eye as to their capability of supporting the superstructure. It was not architects who were to blame. The people were inevitably writing their own character in stone and lime for future generations to read. He criticised the remarks of some recent speakers who had said the long straight line of street was a thing to be avoided. He explained its value from the point of view of business, convenience, economy, and beauty. He showed briefly how architectural treatment being the natural outcome and expression of a good plan did not necessarily add to the cost of building, but might rather lessen it in many cases. Finally, he appealed to the business man to sacrifice some unnecessary and often vulgar display, and to allow architects to express in his business premises the fact that he lived not to himself alone, but was part of a great community.

Public Parks and Recreation Grounds.

Sanction is given by the Local Government Board to the borrowing of 17,000*l*. by the Southgate District Council wherewith to purchase 63 acres of the Grovelands Estate, Winchmore Hill, for a public park. Alderman Randall, J.P., has presented a park and recreation ground to Hemel Hempstead, and has defrayed one half of the cost, 600*l*., of the laying out of the ground. For the convenience of residents of Hampton Hill, the Office of Works has opened a new entrance into Bushey Park from High-street, Hampton Hill. The lands in Kingston Vale that have just been dedicated as a public open space and as part and parcel of Wimbledon Common consist of about 31 acres, which embrace the western course of the Beverley Brook between Coombe-lane (south) and the Kingston-road. The land was acquired for 7,840*l*. out of the Wimbledon and Putney Commons Extension Fund; the Council seek to secure some 170 acres in addition, at a total cost of 52,000*l*.

Old Windsor and the H.A.C. of Boston, U.S.A.

In Thames-street, Windsor, lived Robert Keayne, founder of the Honourable Artillery Company of Boston, Massachusetts. His house in Thames-street was pulled down seven years ago; its site will be marked by the affixing of a commemorative tablet upon the new premises; and a carved casket designed by Mr. A. Y. Nutt, resident architect at Windsor Castle, and made out of an oak beam of the roof of the old house, will be presented to the Boston Artillery Company next month by Alderman Dr. Barber, of Windsor, who last year gave them a picture of Keayne's house. The carvings on the casket are of old Windsor Castle and Town Hall and the original Town House of Boston.

Burton Sewage Disposal.

The South Westmorland Rural District Council have approved and accepted the scheme of sewage disposal for Burton, Westmorland, prepared by Mr. Harry W. Taylor, A.M.Inst.C.E. (Messrs. Taylor & Wallin), of Newcastle and Birmingham. The sewage will gravitate to the outfall, and be disposed of in bacterial works of the most modern description.

The Institution of Civil Engineers.

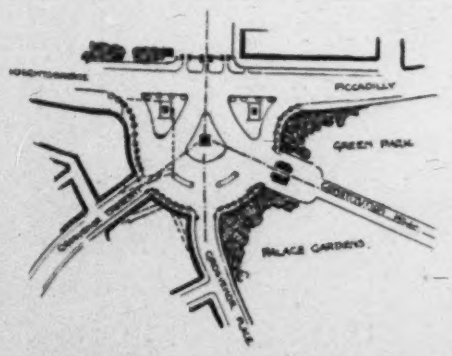
The Council of the Institution of Civil Engineers have made the following awards in respect of students' papers read during the session 1910-1911:—The "James Forrest" Medal and a Miller Prize to Mr. D. Hay, B.Sc. (Birmingham); and Miller Prizes to Messrs. D. A. Howell (Bristol); R. Bonner (Bristol); G. F. Walton (London); R. G. Parrott (Manchester); E. E. Farrant (London); A. C. Dean, B.Sc. (Manchester); H. W. Coales (Birmingham); A. H. Meade (London); A. C. Swales (Leeds); and H. J. F. Gourley, B.Eng. (Manchester).

CORRESPONDENCE.

The Memorial to King Edward: The Hyde Park-corner Site.

SIR,—I was particularly interested in Professor Adshead's scheme for a King Edward VII. memorial at Hyde Park-corner, as only two or three days before seeing the plan in the *Builder* I had prepared one on somewhat similar lines myself, and I enclose a copy with this, which please make use of if you think it worth while.

I realise that the scheme would probably be barred out on account of its expense, as a large part of the site of St. George's Hospital is thrown into the roadway; but as it seems likely that developments are about to take place in connexion with the hospital (and Professor Adshead has allowed for this in his



Suggestion for Hyde Park-corner.

scheme), it would not really be such an expensive matter, as a few of the smaller plots at the back of the hospital might be bought, and the new hotel, or whatever is erected on the site, set back to the new frontage.

The chief advantage of my scheme is, of course, that the memorial is placed opposite the central and not one of the side gates of the park entrance; the statue would also be on the axis of Grosvenor-crescent and Constitution-hill, beside Grosvenor-place and the park gates. The islands have been roughly put in, and might be improved in shape. Wellington is left, as at present, and a site for another statue of the same size is provided.

R. DANN.

St. Paul's Bridge.

SIR,—From the considerable space allotted to the discussion of this matter in the daily Press, it would appear that the public have for once been quite enthusiastic and ready to believe the architectural profession were engaged in fighting a Corporation who were determined to force their bridge scheme through without consideration for the architectural importance of the problems and with mere utilitarian ends in view. The result of the debate on the Second Reading seemed to foreshadow a great triumph for architecture—the defeat of a wealthy City Corporation, through pressure brought by the architects seems too good to be true—it seemed as though architecture had suddenly become a matter of vital consequence. The public, and a number of their Parliamentary representatives who were worked up into a state of indignation at the Bridge House Committee's proposals, will hesitate to champion the cause of architectural development in a hurry again when they read that the Select Committee have come to the conclusion, after taking expert architectural advice, "that the scheme (the Bridge House plans) for the construction of the proposed new bridge, including the approaches thereto, was both in respect of architectural design and convenience of traffic the one best adapted to the public needs, and best suited to the character of the site, and they would report accordingly to the House."

Surely such a fiasco for the profession might have been saved if the Institute had taken counsel with its members and not so glibly talked of vistas and approaches which appear not only to be impracticable, but, in the opinion of many, undesirable. They might with advantage have put themselves to the expense of a properly worked out alternative scheme instead of relying on imaginative pictures of what might be. To many it seemed a miracle that the Bill was referred back under all the circumstances, but, having gained so much, it was disconcerting to find the Corporation had not the slightest difficulty in securing the services of eminent members of the profession to report finally in their favour.

Architecture has certainly not gained much dignity by the whole proceeding, and it was never, unfortunately, more in need of every opportunity to emphasise its importance.

P. MORLEY HORDER.

The Royal Archæological Institute in South Wales.

SIR,—With reference to the visit of this Institute to Old Beaupré Manor House, Glamorgan, an excellent description of which was given in your issue for August 4, mention was made of the inscription over the doorway of the beautiful Renaissance porch, which was given as follows:—

"Sir Thomas Johns Knight bwylt this porch with the tonnes in ano 1600, his yeres 57, his wife 55."

Now the translation of the word tonnes was given by Mr. Alexander as meaning chimneys, but when the Society of Architects visited the House, in 1889, the interpretation of this word was given by the custodian as his wife's dowry.

Perhaps some of your readers would kindly say which of the two is the correct translation.

A measured drawing of this porch was given in the *Builder*, April 14, 1906.

W. EATON, A.R.I.B.A.

FIFTY YEARS AGO.

From the *Builder* of August 17, 1861.

Lambeth Bridge.

MR. P. W. BARLOW, the engineer, says this bridge will have three equal spans of wire cables, made with charcoal iron, each 280 ft. wide, supporting a wrought-iron platform, with rigid lattice sides, similar to a girder, and thus differs from suspension bridges hitherto constructed, which support a wooden platform by small round vertical rods, without any other means of insuring rigidity and preventing oscillation. The river piers will consist each of two cast-iron cylinders, 12 ft. in diameter, driven 25 ft. into the bed of the river, and filled with concrete and brickwork, in the same manner as those now in course of erection for the new Hungerford Railway Bridge. The bridge will have a double carriageway and two footways, the total width being 32 ft. This is so very narrow that it is satisfactory to hear further that the bridge is so designed that an additional width for two lines of carriages may be added without interfering with the traffic.

EDITORIAL SUMMARY.

The leading article is upon the "Surface Treatment of Concrete Buildings."

A second article deals with the "Position of the Expert Witness" (p. 180).

Notes (p. 180) include: "Trade Disputes and Picketing"; "The Civil Aspect of Trade Disputes"; "Basements and By-laws"; "The Royal College of Art"; "School Playgrounds."

The second illustrated article of our series on "The Story of the Bridge" is given on p. 181. Other illustrations in connexion with the article are given on one of our plates.

Some particulars relating to the International Congress of Architects, Rome, to be held in October, will be found on p. 183.

An article entitled "Training and Rewards" appears on p. 183. It discusses the principles underlying the setting of problems for open studentships.

Our report of the proceedings of the Royal Archæological Institute in South Wales is concluded this week (p. 185).

Book Reviews (p. 186) include: "The Church of the Nativity, Bethlehem"; "The Castles and Walled Towns of England"; "The Law Relating to the Paving and Sewering of Streets"; "The Law of Private Street Works under the Public Health Acts"; "A Handbook of Testing Materials."

Correspondence (p. 189) includes letters on: "St. Paul's Bridge"; "The Royal Archæological Institute in South Wales"; "The Memorial to King Edward: The Hyde Park-corner Site."

The Monthly Historical Review—(p. 191) contains articles on: "The 'Passeggiata Archæologica' of Rome" and "London and Paris."

The Building Trade Section includes: "Mediæval Builders at Work"; "Projected New Buildings in the Provinces," etc. (p. 196).

"The Preservation of Old Buildings" is the title of a paper by Mr. W. A. Forsyth, read before the Manchester Society of Architects, the greater part of which is given this week (p. 199).

In Law Reports (p. 201) the case of "Minter *v.* Waldstein" is continued.

MEETING.

SATURDAY, AUGUST 19.

Manchester Society of Architects.—Visit to Chester. The Cathedral and Eccleston Church (the late G. F. Bodley, architect).

ILLUSTRATIONS.

Cottages at Letchworth.

WE publish this illustration of a group of cottages as an example of a typical arrangement far preferable to that of detached or semi-detached buildings in garden cities or suburbs.

The Manor House, Stanton Harcourt.

THE accompanying drawings by Mr. Sydney H. Miller illustrate one of the most interesting of the surviving country seats of mediæval times. The manor has remained in the Harcourt family for 600 years, and the existing house comprises a large part of the building erected in the reign of Edward IV. and some later ones. They formerly enclosed a quadrangle. The gatehouse, which is on one side, and remains perfect, was built in 1547. "One of the corner towers" [of the earlier buildings], says Parker* . . . . "is popularly known as Pope's Tower, that poet having been a frequent visitor here, and had his study at the top of this tower: the ground floor of this tower is fitted up as the chapel."

By far the most interesting portion of the existing buildings is the kitchen, of which our illustrations give a view, plan, and section. It belongs to that early type which stood isolated, or at least in an outlying position, and consisted of one lofty story. It consists of a tower about 25 ft. 6 in. square internally, and therefore considerably smaller than the splendid example at Glastonbury, which was built some three-quarters of a century earlier. The main fire was on an open hearth on the south wall, but is flanked by a pair of wing walls not reaching to the roof, perhaps not original, but added to assist the smoke to find its way to the louvres, which open on to the space inside the battlements. This space can be reached by a turret staircase in one angle. There are two ovens in the thickness of the north wall. Squinches bridge over the angles of the chamber, and above them rises the fine octagonal open-timber roof covered with stone slates and reaching a height of 39 ft. internally. The lower portion of it is vertical and is pierced with louvres and windows in alternate sides. An auxiliary light is obtained—on the cooks' left—by means of two windows placed rather high in the east wall.

* "Domestic Architecture of the Middle Ages," p. 276.

Gate to Court, Hills Castle.

HILL'S CASTLE or Tower, Kirkcudbrightshire, in which is the gateway, illustrated, is situated about eight miles west from Dumfries. This house, according to McGibbon & Ross' "Castellated and Domestic Architecture of Scotland," stands in a high and lonely situation and forms part of a farm-steading, the latter occupying part of the site of ancient buildings on the north side of the courtyard. The castle consists of a keep in the south-west corner with a range of later buildings joined to it on the east. The courtyard is enclosed on the west side with a high wall, having a striking and picturesque gateway in the centre 6 ft 5 in. wide, with a small chamber above it measuring about 8 ft. 8 in. long by about 4 ft. 3 in. wide. This chamber seems to have been reached by a stair from the courtyard, and has its entrance door or opening at the north end. The castle is supposed to have been built in the reign of Robert III., but this opinion is supported neither by the style of the structure nor by record.

"The Story of the Bridge."

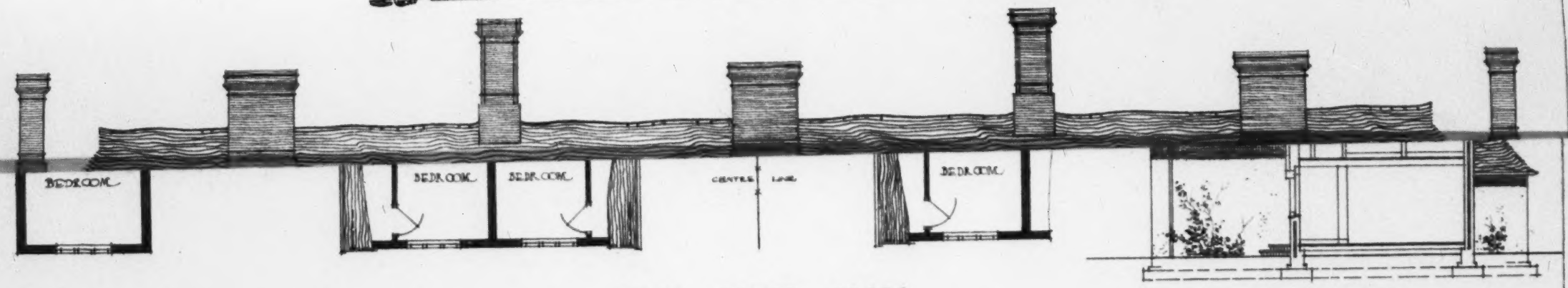
THESE illustrations of Roman bridges are given in connexion with our second article on "The Story of the Bridge," p. 181.

VACANT LAND CULTIVATION SOCIETY.

The Society held their third annual meeting on August 10, under the presidency of Mr. Frank Smith, L.C.C. The Hon. Secretary, Mr. Joseph Fels, said that more than 10,000 acres of unused land lie in the Metropolis, which, under the auspices of the Society, would represent 60,000 plots under cultivation for the growth of vegetable produce. The Society let land, temporarily vacant, to approved applicants, gratis, and provide the necessary practical supervision and instruction; there are now 500 plot holders.

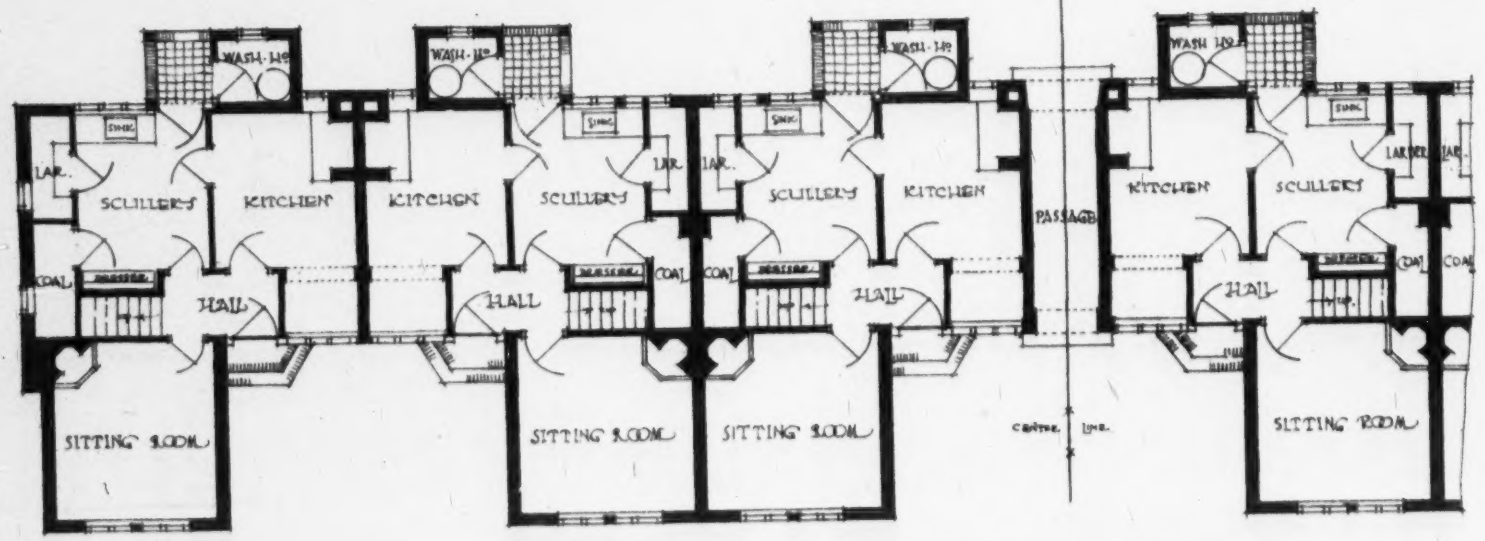
From a Drawing by Mr. Sydney H. Miller.

GROUP OF COTTAGES AT THE FIRST GARDEN CITY LETCHWORTH



FIRST FLOOR PLAN

CROSS SECTION



GROUND FLOOR PLAN

SIDE ELEVATION

R. F. JOHNSTON ARCHITECT
1 BROOK STREET HANOVER SQ. W.

SCALE 10 5 0 10 20 30 40 50 60 70 80 FEET

PHOTO-LITHO SPRAGUE & CO LTD 4-5 EAST HARDING STREET FETTER LANE E.C.

COTTAGES AT LETCHWORTH.—Mr. Robert F. Johnston, Architect.

Squinches bridge over the angles of the chamber, and above them rises the fine octagonal open-timber roof covered with stone slates and reaching a height of 39 ft. internally. The lower portion of it is vertical and is pierced with louvres and windows in alternate sides. An auxiliary light is obtained—on the cooks' left—by means of two windows placed rather high in the east wall.

Gate to Court, Hills Castle.

HILL'S CASTLE or Tower, Kirkcudbrightshire, in which is the gateway, illustrated, is situated about eight miles west from Dumfries. This house, according to McGibbon & Ross' "Castellated and Domestic Architecture of Scotland," stands in a high and lonely situation and forms part of a farm-steading, the latter occupying part of the site of ancient buildings on the north side of the courtyard. The castle consists of a keep in the south-west corner with a range of later buildings joined to it on the east. The courtyard is enclosed on the west side with a high wall, having a striking and picturesque gateway in the centre 6 ft 5 in. wide, with a small chamber above it measuring about 8 ft. 8 in. long by about 4 ft. 3 in. wide. This chamber seems to have been reached by a stair from the courtyard, and has its entrance door or opening at the north end. The castle is supposed to have been built in the reign of Robert III., but this opinion is supported neither by the style of the structure nor by record.

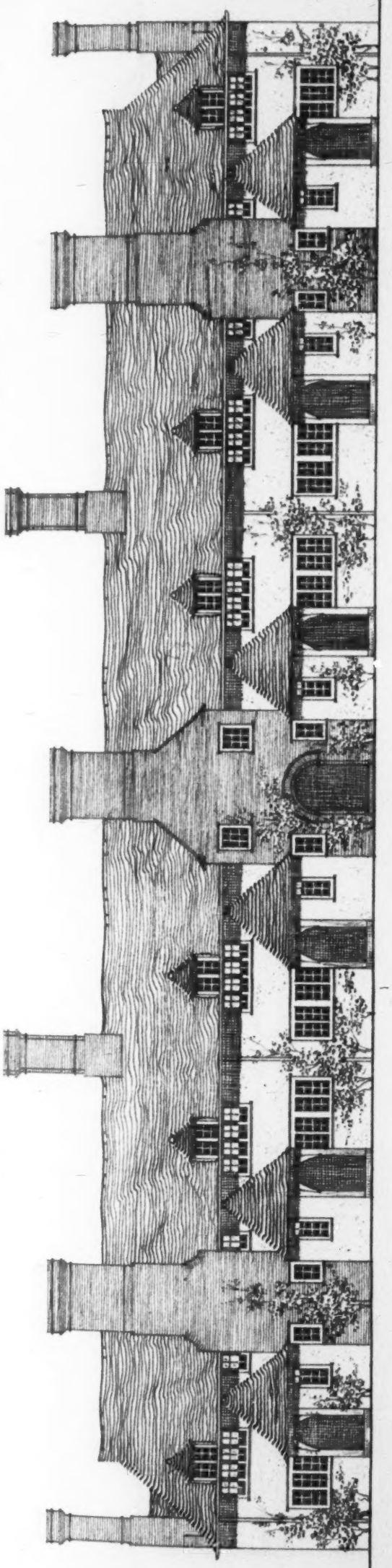
"The Story of the Bridge."

THESE illustrations of Roman bridges are given in connexion with our second article on "The Story of the Bridge," p. 181.

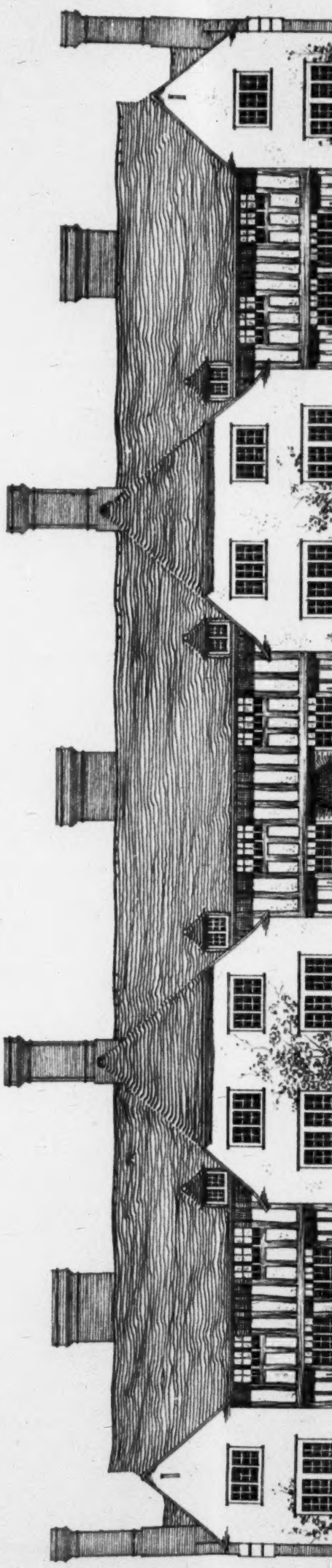
VACANT LAND CULTIVATION SOCIETY.

The Society held their third annual meeting on August 10, under the presidency of Mr. Frank Smith, L.C.C. The Hon. Secretary, Mr. Joseph Fels, said that more than 10,000 acres of unused land lie in the Metropolis, which, under the auspices of the Society, would represent 60,000 plots under cultivation for the growth of vegetable produce. The Society let land, temporarily vacant, to approved applicants, gratis, and provide the necessary practical supervision and instruction; there are now 500 plot holders.

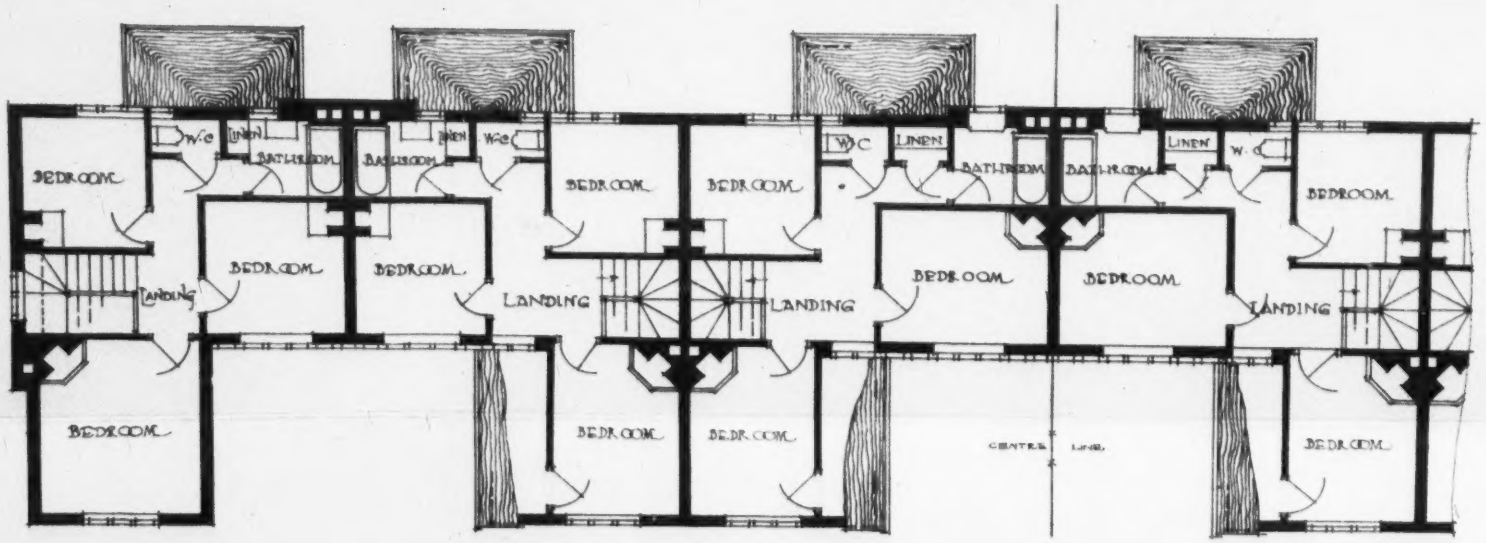
GROUP OF COTTAGES AT THE FIRST GARDEN CITY LETCHWORTH



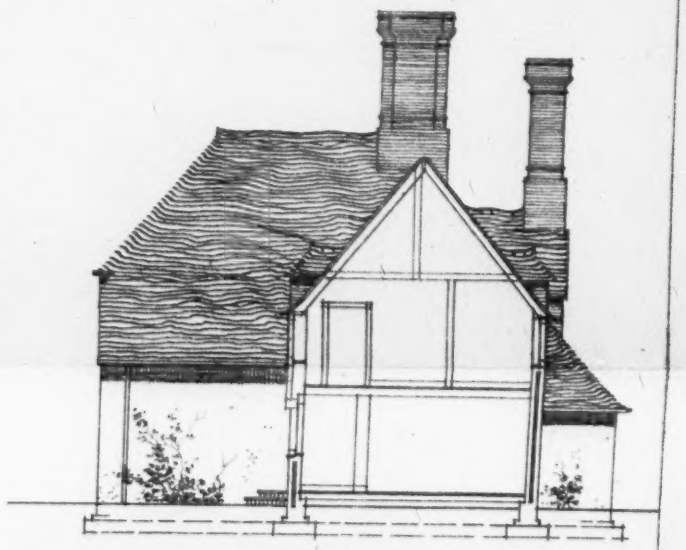
NORTH ELEVATION



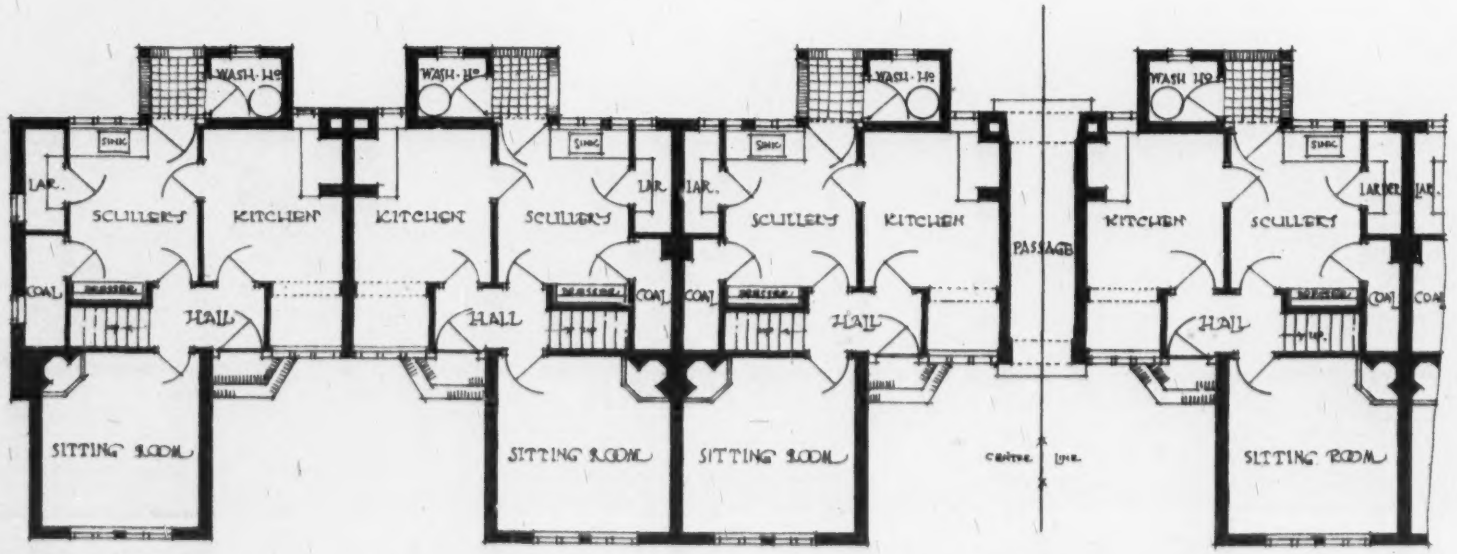
SOUTH ELEVATION



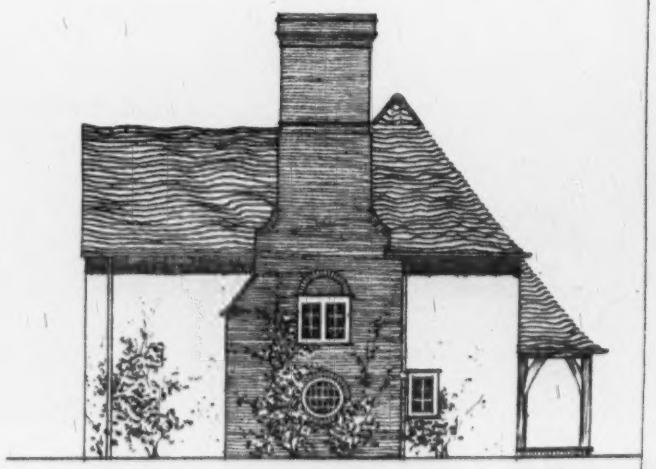
FIRST FLOOR PLAN



CROSS SECTION



GROUND FLOOR PLAN



SIDE ELEVATION

SCALE 10 5 0 10 20 30 40 50 60 70 80 FEET

R. F. JOHNSTON ARCHITECT
1 BROOK STREET HANOVER SQ. W.

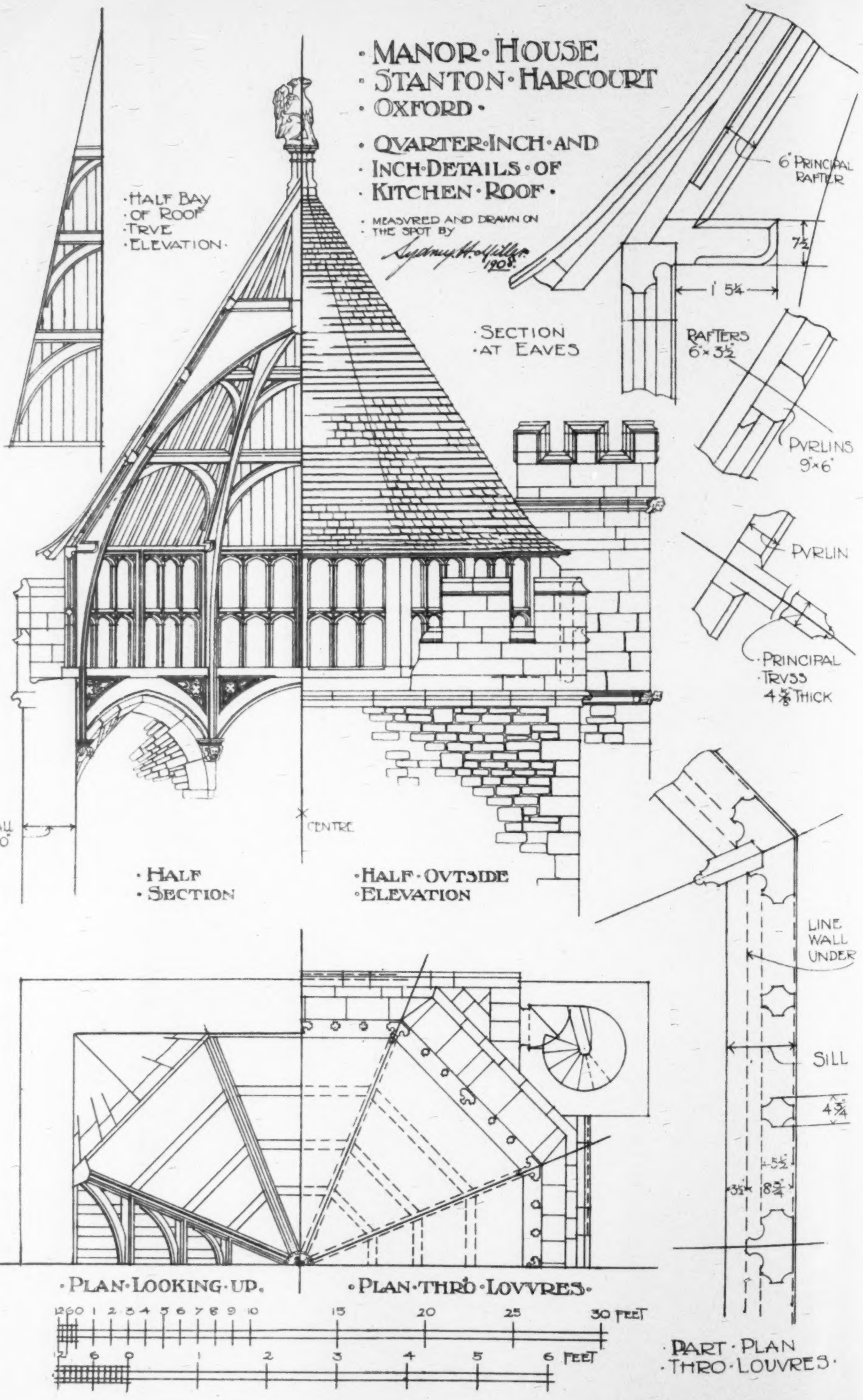
PHOTO-LITHO SPRAGUE & CO LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

COTTAGES AT LETCHWORTH.—MR. ROBERT F. JOHNSTON, ARCHITECT.

MANOR HOUSE
STANTON HARCOURT
OXFORD

QVARTER INCH AND INCH DETAILS OF KITCHEN ROOF

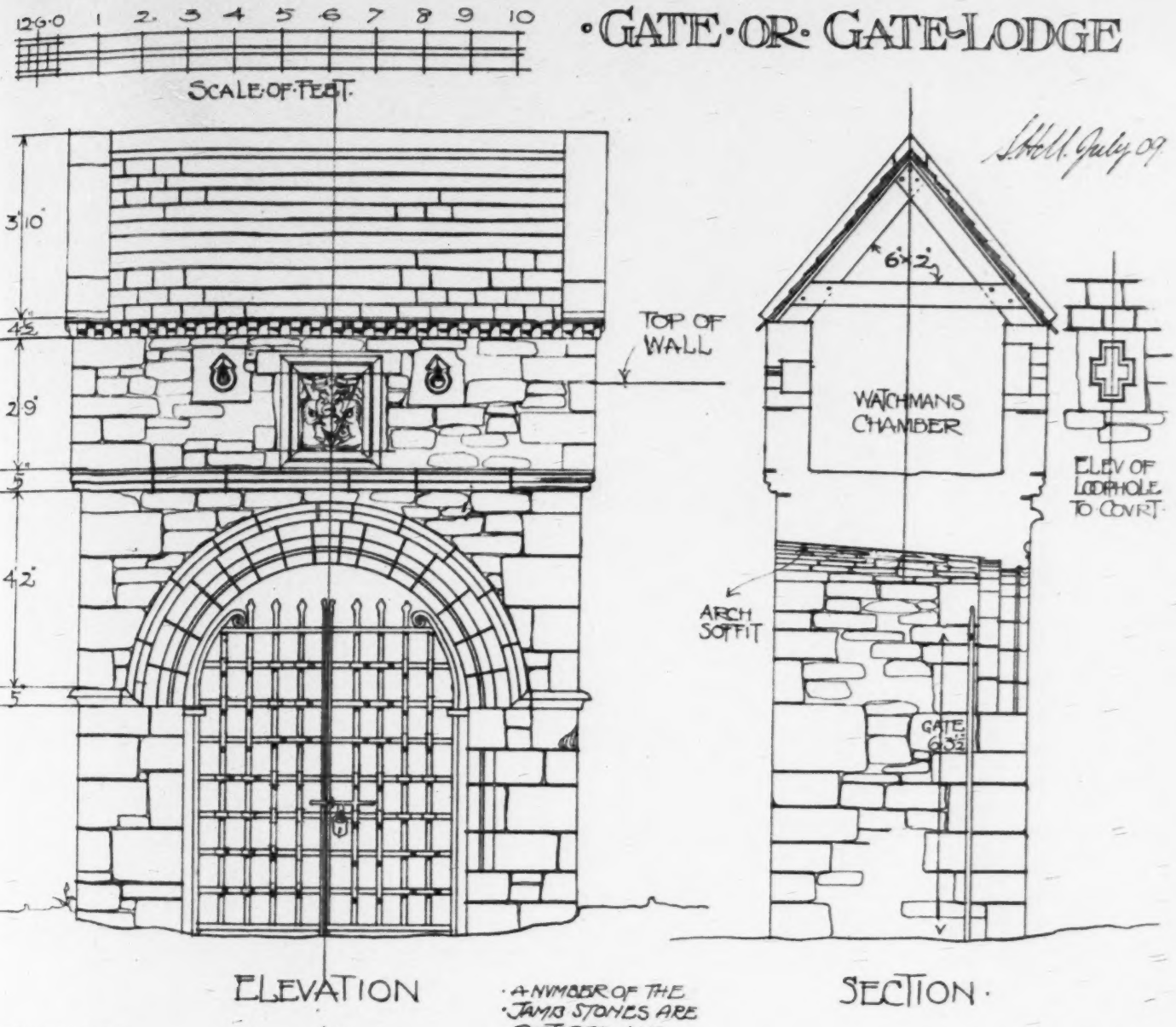
MEASVRED AND DRAWN ON THE SPOT BY Sydney H. Miller 1908.



Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

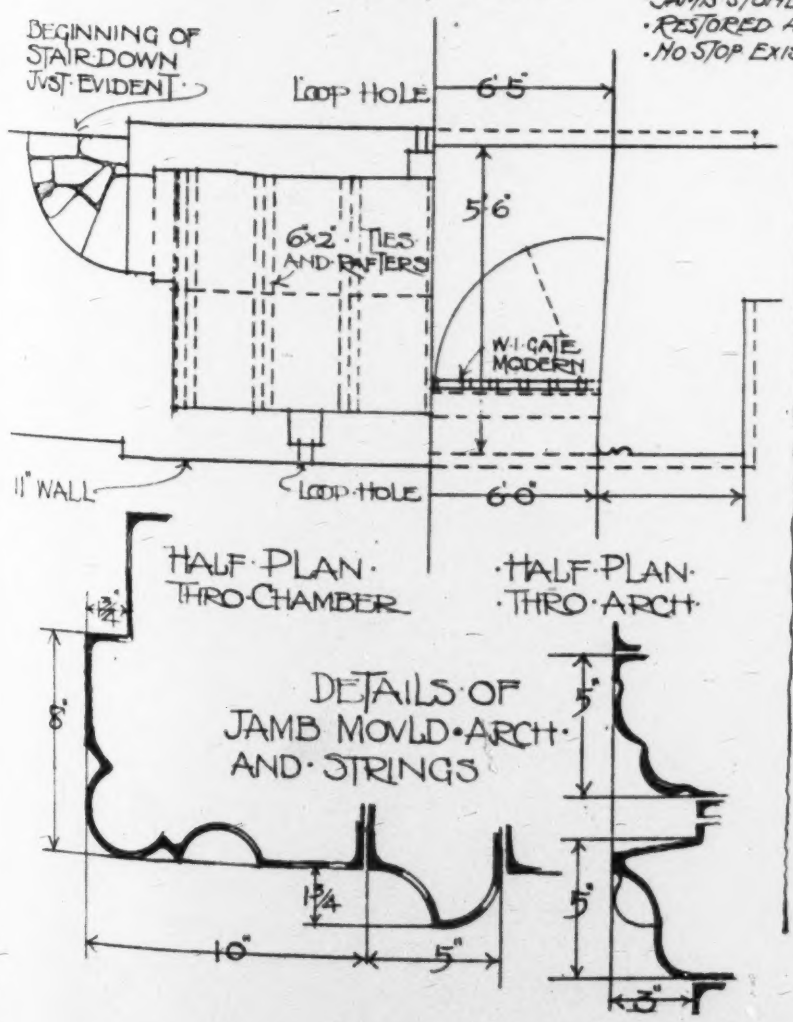
KITCHEN, STANTON HARCOURT, OXFORD.—Measured Drawing by Mr. Sydney H. Miller.

GATE OR GATE-LODGE



ELEVATION

SECTION



A NUMBER OF THE JAMB STONES ARE RESTORED AND NO STOP EXISTS

SKETCH FROM NORTH WEST

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

GATE TO COURT-YARD, HILLS CASTLE, KIRKCUDBRIGHTSHIRE.—MEASURED DRAWING BY MR. SYDNEY H. MILLER.

Photo by Neuerdein Frères, Paris.

ROMAN BRIDGE OVER THE OUVÈZE AT VAISON, VAUCLUSE, FRANCE.

"THE STORY OF THE BRIDGE."—II.

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

Photo by Neuerdein Frères, Paris.

ROMAN BRIDGE OVER THE OUVÉZE AT VAISON, VAUCLUSE, FRANCE.

"THE STORY OF THE BRIDGE."—II.

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

Photo by Neuerdein Frères, Paris.

ROMAN BRIDGE OVER THE RHÔNE AT VIVIERS.

"THE STORY OF THE BRIDGE."—II.

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

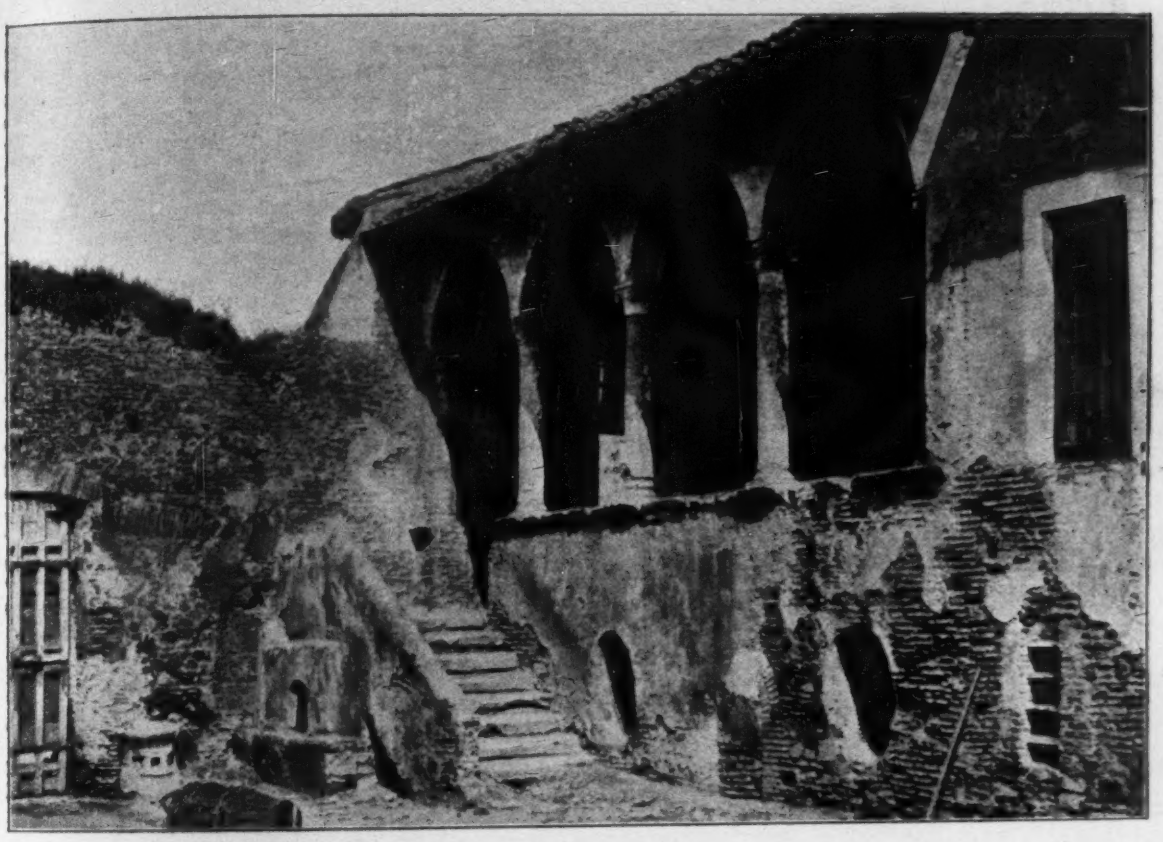
FRO
P
P
beneath
Villa Ho
the old
Antonini
the so-ca
of the *Ze*

All thi
the circu
and mos
Rome; i
has poin
part of
the temp
of Drusu
by the
fountain
Camenæ,
all these
within
egress, t
S. Seba
Metronia
we imagi
Guiscard
narrowe
the Capi

The la
belongs,
certain
but to
associati
opportu
subject
ing in
both wi
which
Builder

The
reawake
propose
were th
position
and wh

MONTHLY HISTORICAL REVIEW.



The Villa of Cardinal Bessarion (still surviving).

THE "PASSEGGIATA ARCHÆOLOGICA" OF ROME.

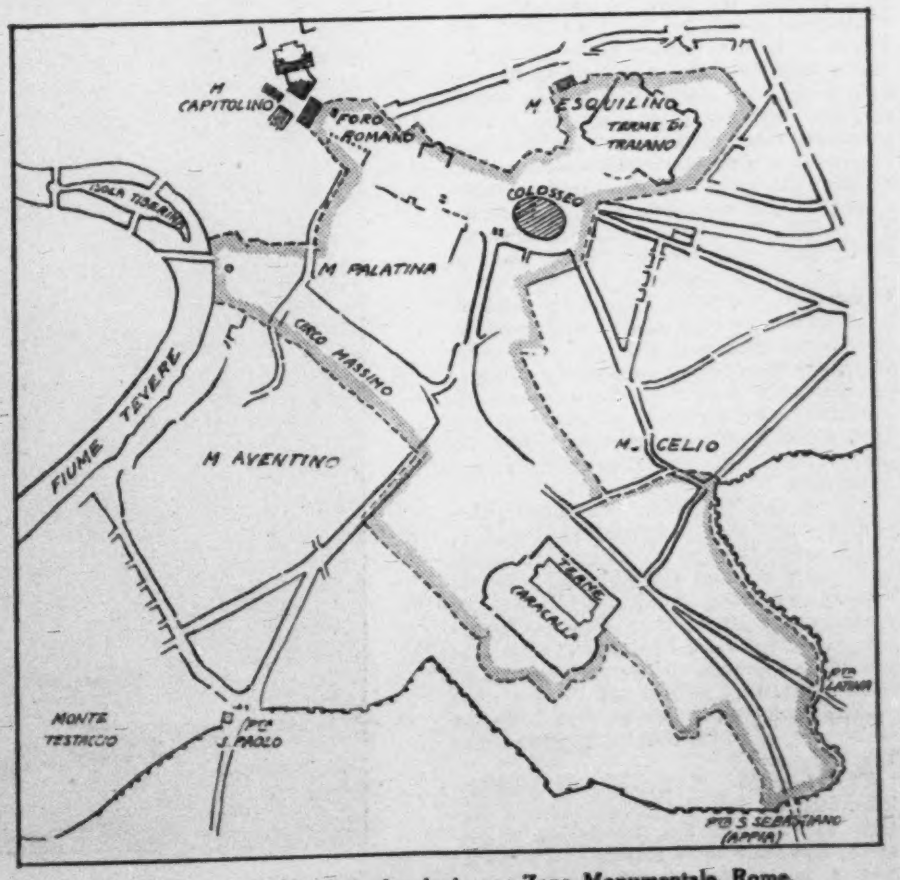
FROM the Arch of Constantine to the Porta Appia on the one side and the Porta Latina on the other, passing beneath the Palatine and the picturesque Villa Hoffmann, and including the site of the old Piscina Publica and the Thermæ Antonianæ (Baths of Caracalla), extends the so-called *Passeggiata*, which forms part of the *Zona Monumentale*.

All this space from the Colosseum up to the circuit of outer walls was an integral and most important part of the city of Rome; it included—as Commendatore Boni has pointed out—the ancient Servian wall, part of the Via Appia, the shrine of Mars, the temples of Honor and Virtue, the arches of Drusus and Verus, the *piscina publica* used by the Romans for swimming, the sacred fountains of Apollo, of Egeria and the Camenæ, and the great Baths of Caracalla, all these buildings, as we saw, being included within the city walls, with, as points of egress, the Porta Appia (now called Porta S. Sebastiano), Porta Latina, and Porta Metronia; and it was not really abandoned, we imagine, till the sack of Rome by Robert Guiscard brought the population within the narrower limits of mediæval Rome between the Capitol and Vatican.

The laying out of this important site, which belongs, we may venture to assert, in a certain measure, not alone to modern Rome, but to the world, with all its priceless associations and its even more priceless opportunities for excavation, has been the subject of much controversy and strong feeling in archæological and artistic circles both within Rome and without—a subject which has been already treated in the *Builder* in June of 1910.

The present is not a suitable moment to reawaken that controversy, and we only propose in this notice to review briefly what were the points at issue, what is the present position in this year of celebrations of 1911, and what, in spite of certain mistakes, which are now irremediable, we may place to the good and hope for the future.

First, a word of deserved praise to the Minister, Guido Bacelli, for his action in bringing forward in 1887 the Bill which became law for the *Zona Monumentale*, thus preserving to the world this integral and most important part of the ancient city; a law which took more definite shape in the enactments of 1889, 1898, 1907, and the appointment of a Royal Commission to superintend the proposed work. So far all was to the



Plan of the Passeggiata Archæologica or Zona Monumentale, Rome.

[Photo. Moscioni.

The Villetta Vignola (now demolished).

good; the site was preserved from being covered with modern buildings, but the action of this Commission aroused considerable public criticism, which found expression in the vote passed at the meeting of the Artistic, Technical, Historical and Archæological Associations of Rome in February of 1910.

The *desiderata* put forward at that important meeting seem to us so sound in principle, so moderate and so convincing, that we shall make no apology for developing them at this point a little in detail.

First of all must come the point of view which was expressed at the meeting, and still further developed in an excellent article by Signor Alfonso Bartoli in the *Annuario* of the above Association, of "the correspondence between the roads actually existing and the ancient roads."

Without going very much into detail, the most cursory glance at the topography will at once explain this point. The present road through the Arch of Constantine to S. Gregorio covers the *Via Trumphalis*, the Via di Porta S. Sebastiano is the *Via Appia*, bifurcating with the *Via Latina;* the Via della Mole is the *Vicus Camoenarum*, and so on; and it will be at once evident that to obliterate these ancient roads, which have survived—in a slightly ecclesiastical nomenclature—the course of ages (only a slight change having been made in the join of the Via S. Sebastiano with that of S. Gregorio, for the entry of Charles V. in 1536), would be not only an irremediable loss to historic topography, but would, if they were replaced, as seems to have been actually contemplated, by a broad rectilineal boulevard with tramways, newspaper-kiosks, and all the adjuncts of advanced modernity, have practically annihilated the prospects of future excavation, which must necessarily proceed on the general lines of the ancient roads and known monuments.

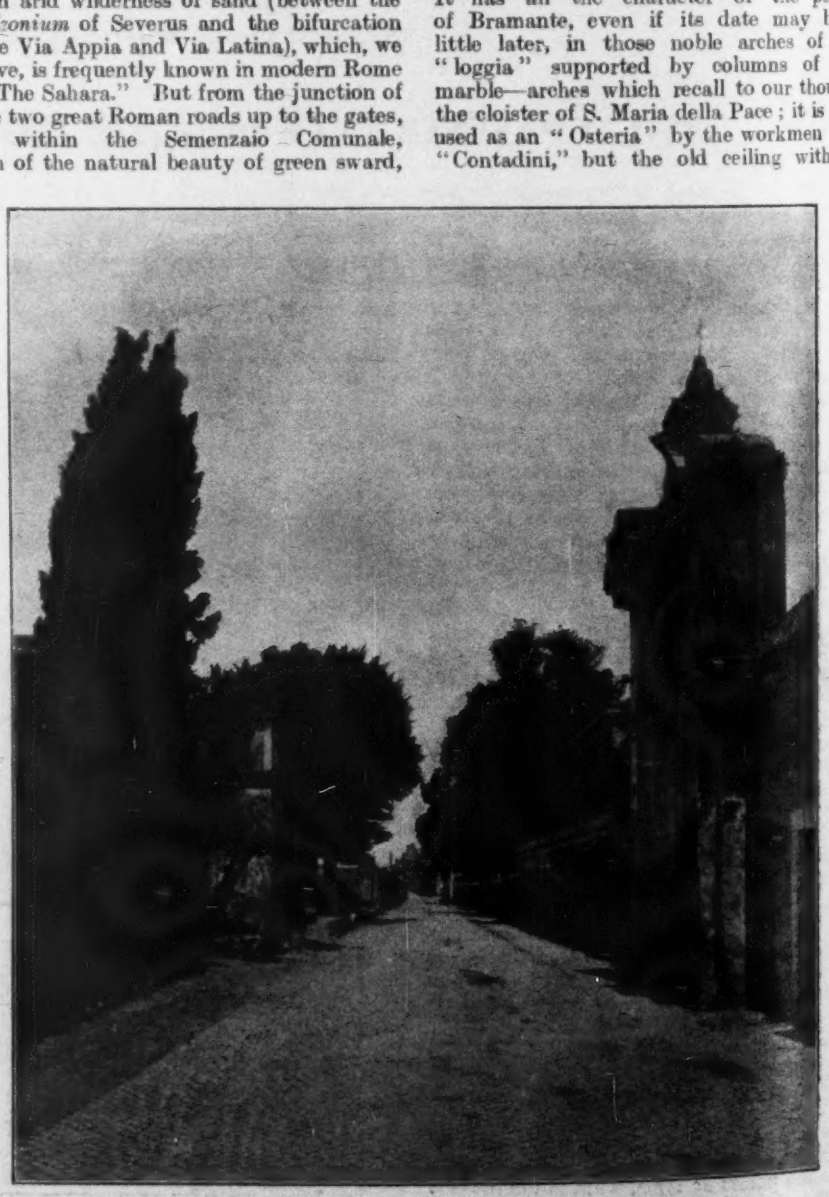
The position here taken by the Association—that "no broad rectilineal thoroughfare, which would take away all natural beauty and character from the site, and result in damage to existing buildings, while it would render every rational exploration of what was beneath the soil impossible," should be undertaken—seems to be so obvious, so self-evident, that we will not linger further on this resolution, nor yet on that following, which referred to the ill-fated Villetta, called the "Vignola."

This beautiful XVth century building, illustrated on this page, and which it was then the hope of the Association to preserve, has since been ruthlessly destroyed; but it is no part of our object here to dig up old grievances, and, therefore, we will pass on at once to the next *desideratum*, which referred to the preservation, as far as possible, of the existing vegetation. Much of this has, in fact, actually gone to an extent which only those who know the ground can appreciate, and been replaced for the time by an arid wilderness of sand (between the *Septizonium* of Severus and the bifurcation of the Via Appia and Via Latina), which, we believe, is frequently known in modern Rome as "The Sahara." But from the junction of these two great Roman roads up to the gates, and within the Semenzaio Comunale, much of the natural beauty of green sward, dark cypresses, magnolias, and leafy trees yet remains; and here again we can only echo the hope expressed by the Association that as much as possible of this may be preserved to the public. That beautiful old gateway, with its flanking cypresses at the joining of the roads comes here into one's thoughts.

And not this alone, but those interesting churches which rose in early Christian days in this part, among them S.S. Nereo and Achilleo—martyrs to their faith, as the inscription over the doorway records—with the graceful campanile of this church; S. Sisto "in Piscina," with its convent, which took its name in part from the "Piscina," the swimming-bath of the Romans, just as S. Cesario, hard by, probably drew its title of "*in Palatio*" from the Palace of the Cæsars. All these belong to the story of the world as centred in Rome, and their loss would be irreplaceable.

The curious round edifice of brickwork, with three niches, upon the *piazzale* of S. Cesario may be also Christian, though Signor Bartoli suggests that it might be a record of some ancient altar at the junction of the Appian and Latin roads; and here, too, it may be possible to recover some traces of the Arch of Drusus, which was at this point. But the wider archæological outlook of the present day includes in its interest not merely antique remains, but those of the Early Church, of the Middle Ages, and the Renaissance; and to this last epoch belongs the Villa of Cardinal Bessarion, which is only a little beyond S. Cesario, on the same side of the road.

This delightful little gem of Renaissance architecture only just escaped the fate of its sister building, the Villetta Vignola. It has all the character of the period of Bramante, even if its date may be a little later, in those noble arches of the "loggia" supported by columns of fine marble—arches which recall to our thought the cloister of S. Maria della Pace; it is now used as an "Osteria" by the workmen and "Contadini," but the old ceiling with its



A View of the Old Via Appia showing walls and foliage, now removed.

great rafters, the open "loggia," and outer stairway leading to it still survive, and within we found the decorative frieze of Renaissance scrollwork with heads of cherubs (which could easily be restored) and the finely-designed marble or stone doorways leading to the inner rooms.

It seems we have here a very precious record of the period, which has mercifully escaped the destroyer, and which might easily be restored, to become a permanent and most attractive feature of the "Passeggiata."

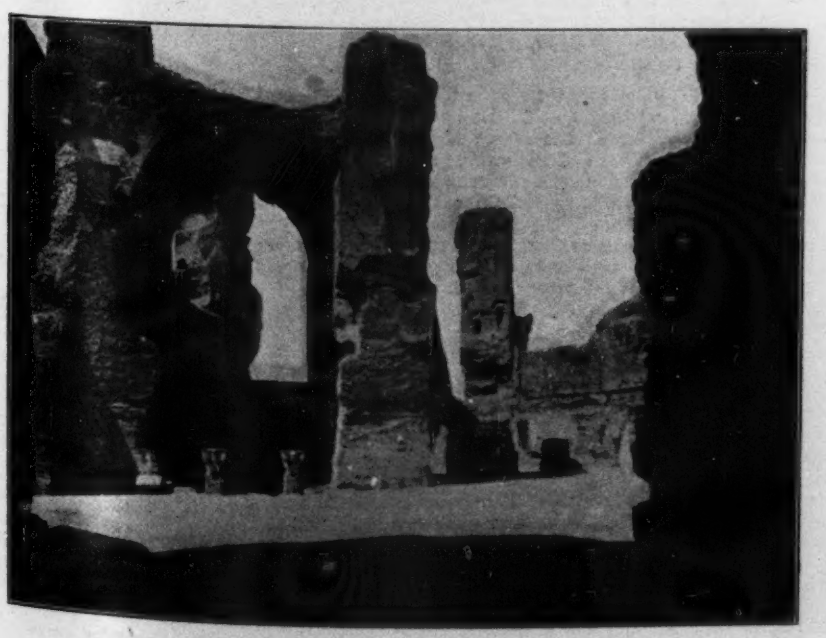
If we now turn back for a few hundred yards, and take the Via Latina, before we reach the gate we shall come to another Renaissance building of great charm, the little circular temple (*tempietto*) of S. Giovanni di Oleo, which might have served for the model of the temple in the background of Raphael's *Sposalizio* of the Brera Gallery, and which was dedicated to the Baptist by a French prelate—*Divo Jo. Evang. sacellum Benedictus Adam Auditor Gallie*—in the year 1508, with the quaint inscription added—*Au plaisir de Dieu.* Then, if we go out through the noble Porta Latina with the sign of the "Labarum" on the initial arch, and passing beneath the ancient walls of Rome re-enter through the even finer Porta Appia (Porta S. Sebastiano) with its double gateway, the Byzantine superimposing itself upon the Roman, we shall have formed some impression of the grandeur of the city; an impression that is completed when, passing again by the Villa of Bessarion and S. Cesario we take the road to the left, which faces the Osteria Monte d'Oro, and passing through a gateway find ourselves before the vast circular building of Roman brickwork, which forms a fitting prelude to the colossal ruins of the *Thermæ Antonianæ*. Here, through the great Temple (if it be such) would be the really appropriate and effective entrance to these greatest Roman baths; and here we may leave the records of the past to examine what is being done in the present as to the "Passeggiata," and what is its future outlook.

Supposing that we commence our survey, as described in the first words of this notice, by walking from the Arch of Constantine down the Via di S. Gregorio, we shall notice on the left before long a number of broken columns, capitals, and plinths before a building of unpretentious character, which is a recent addition in the shape of a Museum of Archæological Sculpture. On both sides of the road where, on that of the Palatine at least, we seem to remember a boundary wall we now see an iron fence of the most hideous modern design, which has this one advantage (and it is perhaps its only one) that it permits us to see those grand ruins of the Palatine, and, especially at the corner, where the road turns at an angle, the massive pile of the Septizonium and Domus Severiana. It is also at this precise point that commences what we have already described as the "Sahara," that is a wilderness of bricks and mortar and suffocating sand, which is best approached after heavy rains, as it then assumes the more congenial form of mud; and penetrating this wilderness, we soon discover an escape in the form of two roads, one of which, taking what is really a very graceful curve under the hill, skirts beneath the picturesque terraces and stone pines of the Villa Hoffmann, and joins the other—which has followed the old direct lines of the Via Appia through the Porte Capena—at the bifurcation of this road and the Via Latina, between the old churches of S. Sisto in Piscina and S. Cesario. A number of buildings, together with walls and vegetation—in some cases most unfortunately, in others perhaps more fortunately—have been demolished, trees have been planted which are yet in very unfledged condition, and the whole aspect is arid and unattractive. At either side of this scene of desolation two giants emerge, fronting each other now in majestic isolation, and these are the massive ruins of the *Thermæ*—the Baths of Caracalla—and the no less tremendous and impressive pile of the Palace of the Cæsars. Only an open space divides now these two great ruins of Roman Empire, and the effect is inexpressibly grand.

At the same time it will be noted that if all the *desiderata* which we studied in detail in this article have not been achieved—if the "Villetta Vignola" exists now as a memory, or in a photograph, yet the protests of well-wishers to the past and present of Rome, both within Italy and without, have been far from inefficacious. That "boulevard," on the lines of the Via Veneto or Via Nazionale, with its tramways, its kiosks, its seats for nurses, and trees planted with mathematical regularity, has been limited to almost a third (if not less) of the breadth originally schemed, and, in fact, been replaced by two roads which are in harmony with the natural position, the line of the ancient Via Appia and the landscape. In spite of what we have lost there remain, besides the immortal Roman relics—which are, of course, absolutely safe—buildings of the early Christian epoch and of the Renaissance, such as the Villa of Bessarion and the "Tempietto" of S. Giovanni, which we may now hope to see spared, to be included within this "Passeggiata," which could ill afford to lose them; and in this soft Roman climate, when the present waste has been cultivated, arranged with true horticultural skill, and, we may hope, a certain severity of taste—palms, cypresses, great stone pines, lovely creepers, above all, roses, roses in profusion—beside those classic spoils which this populous and important portion of the "urbs," the Eternal City, is surely waiting to restore to us, it will need but a few years' care for us to find here once more that "the wilderness shall blossom as the rose."

Foliage in the Semenzaio.

It is the goddess Rome who sleeps here—as Signor Boni has said, "*La Dea Roma qui dorme*"; and when modern Italy took over the ancient world-city for her capital she assumed the great responsibility which Europe and America—like herself inheritors of that past—can never for one moment allow her to forget. Yet it may be no rash prophecy to say that, ere many years, the walk or drive from the Meta Sudans beneath the Arch of Constantine, past the Septizonium, the "Termæ" of the Antonines, through the Appian Gate, under the walls of Rome, to return by the Via Latina—with that wonderful vista of S. Peter's in the distance, as great, as Roman as even the Thermæ—and those churches of the Christian martyrs, above all in these months of springtime, when the whole scene shall be enclosed in verdure, will be one which will be unequalled in the world; and every effort which has helped, or will help, to this will be of lasting value to those who come after.



Interior of the Baths of Caracalla, Rome.

LONDON AND PARIS.

THE problems which the city fathers of the two great Western capitals have to face in the matter of improvements have much in common, though occasionally they are startlingly diverse. Of the second category is the question of statues. If our London statues are not always as effective in themselves or in their placing as might be wished, it cannot at any rate be said that we suffer from a plethora of them. As compared with most large Continental cities, London is statueless. In Paris the case is far otherwise. There the invasion of every available position with products of the sculptor's art has attained the proportion of a public nuisance, as considered from more points of view than one. The standard of artistic merit is by no means evenly sustained; the relation between the work and its surroundings, and of the object of the monument with the position chosen is far from being always a satisfactory one, and finally the public is in danger of having its attention permanently engaged by the counterfeit presentment of a crowd of mediocrities, who had far better had been consigned to the oblivion they deserve.

So serious has the question of stemming this tide of commemoration become that the Municipal Council has adopted the following resolutions: (1) That no site be granted for the erection of a statue without a previous inquiry on the spot and the approval of a model to be submitted by the committee of promoters; (2) that the monument must be in honour of a person who has been dead at least ten years. Two instances of the recent neglect of some such very proper precaution may be quoted in the heart of what may be termed the ornamental area of Paris.

The northern walk of the Tuileries gardens has been defaced by the erection of a statue to Jules Ferry, vulgar and commonplace in the highest degree and unspeakably ungraceful in outline, while the little enclosure in the Louvre which intervenes between the monuments of Gambetta and Lafayette, a peaceful square of greenery, has become the abode of a jostling crowd of figures entirely without relation either to their surroundings or to each other, of all degrees of merit and demerit, representing every phase and fashion of the studios. The arrangement has only this in its favour, that the spot is seldom visited and if it could be surrounded by a good hedge high and thick enough to hide its contents, it would become a decorative object and might be utilised for the storage of a still greater number of sculptural wild oats. Fortunately, a few steps will bring the stroller into view of a suitable and effective use of statuary in proper relation to its site in the figures—in themselves not masterpieces—which decorate the entrance to the Pont Royal.

To turn to a subject which is being considered simultaneously in London and Paris—the building of a new bridge—it is interesting to note the course being taken by our neighbours in the question of a new bridge. The continuation of the Rue de Rennes northwards and its possible junction with the Rue du Louvre has long been debated. The former part of the project brings the Municipality into conflict with the powerful interests of the "Institut": for a continuation of the street in a direct line would cut the College Mazarin in two. As a compromise it was proposed to deflect it slightly to the east so as to emerge between the Institut and the Monnaie, compensating the Institut for the loss of subsidiary buildings at the side by an enlargement of its *hinterland* in the Rues de Seine and Mazarine. This, however, was opposed by the Forty, and this portion of the scheme is at present under reconsideration.

Had it succeeded, the town would have had several alternative schemes to consider for the junction by a bridge with the right bank. One of these was to prolong the point of the Ile de la Cité down stream, and connect it with either bank by a bridge, a project by which the view of the old Pont Neuf and the garden behind Henry IV.'s statue would have been deprived of much of their charm.

A rival scheme by which the river was to be spanned by a vast double bridge in the form of an X has also been dropped, and happily so, for the diagonal lines of the piers could not but have had a most disturbing effect from the artistic point of view, to say nothing of the danger to the river traffic.

Both schemes have now been finally superseded by one substituting a new bridge for vehicular traffic for the existing footbridge, the familiar Pont des Arts. The chief point of interest in the matter is the importance assigned to æsthetic consideration throughout the course of the discussion. The same will be the case in regard to the selection of the design for the new bridge, which is to be put up to competition; for the decision is not to be arrived at till the designs have been "reproduced in a small scale model of the district of the point of the Cité, so that it may be possible to obtain an idea of the new aspects from different points of view by means of photographs and lantern slides."

The kindred question of providing a wider outlet to the Pont Neuf at the south end is also being considered. This point is a very dangerous one from the congestion of traffic—at this very spot a tragic accident deprived the world of science of one of its most brilliant explorers, when M. Curie was crushed under the wheels of an "autobus." The formation of a "place" on the Quais des Augustins and de la Monnaie, which might form an alternative termination for the prolonged Rue de Rennes, is proposed. It is greatly to be feared that if buildings of unsuitable design or excessive height are allowed to rise round the new open space, the characteristic old world charm of the neighbourhood will be lost. *L'Architecture* emits the hope that a uniform design in harmony with the neighbouring Place Dauphine should be imposed. The latter is itself the result of a notable scheme of town improvements carried out at the beginning of the XVIIth century under Henry IV., when the space formed by enclosing two small islets in a common embankment, and thus linking the Pont Neuf with the Ile de la Cité, was utilised for the creation of a triangular "place," surrounded by uniform buildings. Unlike the contemporary Place Royale (now des Vosges), which has largely retained its primitive aspect, the Place Dauphine has been sadly defaced by alterations of all dates. Fortunately, however, it has quite recently been in part very intelligently restored, and the pretty patterned brick elevations of the twin houses on the bridge, with their massive stone rustications, have once more resumed their original appearance. The municipal authorities might find here a happy inspiration for their proposed improvement on the south bank.

In the meantime they are continuing to show in other domains their determination not to be guided solely by utilitarian considerations. Owners of house property in certain streets which, like the Rue de Rivoli and the Rue de Castiglione, are built on uniform designs, are subject to special regulations, which prevent their raising the height of the buildings or otherwise disturbing the uniformity. In certain cases, where interests sufficiently powerful were in play, these conditions have been violated with impunity. In others it is still in debate whether the offenders are to be sued. Meanwhile, a new machinery is being elaborated whereby such infringements shall be prevented and the symmetry of the elevations preserved by a more summary procedure. The aspect of Regent-street to-day makes lovers of London long for the advent of a beneficent power which should prevent the conversion of order into chaos, and in this, as in so much else, we have much to learn from Paris.

HISTORICAL NOTES.

"La Maison des Musiciens," Rheims. It was reported in the *Athenæum* of April 24 that the beautiful XIIIth century house, whose front is adorned with five fine contemporary statues, has now been finally saved from the danger of destruction, or rather of removal, which has more than once threatened it. At one time it was on the point of being taken down to be re-erected in America, but since it consisted of two tenements belonging to different owners, who could not agree about the sale, that fate was averted. Six years ago one of the halves was bought with the proceeds of a subscription. A society known as "Les Amis du Vieux Reims" has now succeeded in acquiring the other, and the whole is now to become the property of the city.

Excavations at Corfu. The Hellenic Government has conceded to the German Emperor full rights of excavation at Garitza and Govino Harbour in the vicinity of his Corcyrean palace of Achilleion. The work was vigorously prosecuted last spring at his Imperial Majesty's expense and under his personal supervision. It is being directed by Drs. Dörpfeld and Versakis, with a large staff of German assistants. Among the most interesting objects as yet unearthed are the fragments of a gigantic figure of a Gorgon of about the VIth century B.C., viz., the head, the feet and the snake-girdled body, also a remarkable lion's head of the same period. These and all other finds are, according to stipulation, to remain in the island.

The Excavations at Meroe. The exhibition of objects found at Meroë, held this summer in the rooms of the Society of Antiquaries, and opened by Lord Kitchener, was of very great interest. A leaflet supplied to visitors gave a summary of the results of the excavations obtained by the explorers, which greatly amplifies the information we were able to give in a previous issue. We borrow from it the following:—

"On the east side of the railway the most remarkable building is the Temple of the Sun, at fifteen minutes' distance. It seems to have been built by Aspeout, about 600 B.C. The building rises in perambulatory terraces, of which the lowest is a substantial platform, surrounded by a cloister. In the centre of all, and so at the highest part of the structure, is the sanctuary, with remains of an obelisk and solar emblem. Part of its floor, of blue and yellow-glazed tiles, is still to be seen. The proportions of the architecture and the scenes of triumph sculptured on the outer walls are also noteworthy. Close to the railway on this side there may be seen the numerous tomb-mounds of the necropolis; and among these, at the south end, are two small temples or shrines, one dedicated to the Lion-god, the other possibly to the Cow.

"On the west side of the railway are the ruins of the artisans' dwellings and workshops, the pot-kilns, etc. Proceeding, the pylon of the great Temple of Amon is reached (at five minutes' distance). This splendid building is now completely uncovered, and the visitor may walk through its many-columned halls. It dates from about 300 B.C. Its axis is 450 ft. in length; and there may be seen in their places a sculptured stone throne-dais and the high-altar, decorated with reliefs. This was the place of the oracle of Amon, whose sacred tomb-chamber may be seen behind the altar.

"Climbing the ruins at the western end of the temple, the path leads over the great stone wall of the ancient city, and in front there may be seen the foundations of two royal palaces. In the middle of the nearer one are the remains of the royal treasure chamber, near which two vases filled with golden nuggets and dust, as well as royal jewels, were found during the course of excavation. Just to the north is a columned chamber, the walls of which are decorated with frescoes showing royal personages in gorgeous robes, and prisoners.

"Just beyond this building there may be found the traces of several deeply-buried ancient buildings (period before 600 B.C.); and, further, of the western gate and quay wall. These probably gave access to the Nile, which, however, is now two or three hundred yards distant."

The exhibits included a remarkably fine Roman bronze head of the age of Augustus, in regard to which it is still a matter of controversy, whether it represents Augustus himself or Germanicus, who visited Assouan during his military command in the East; and in addition jewelry and vessels and implements in pottery and bronze. Among these a vase decorated with a vine pattern and a cameo representing running horses may be mentioned.

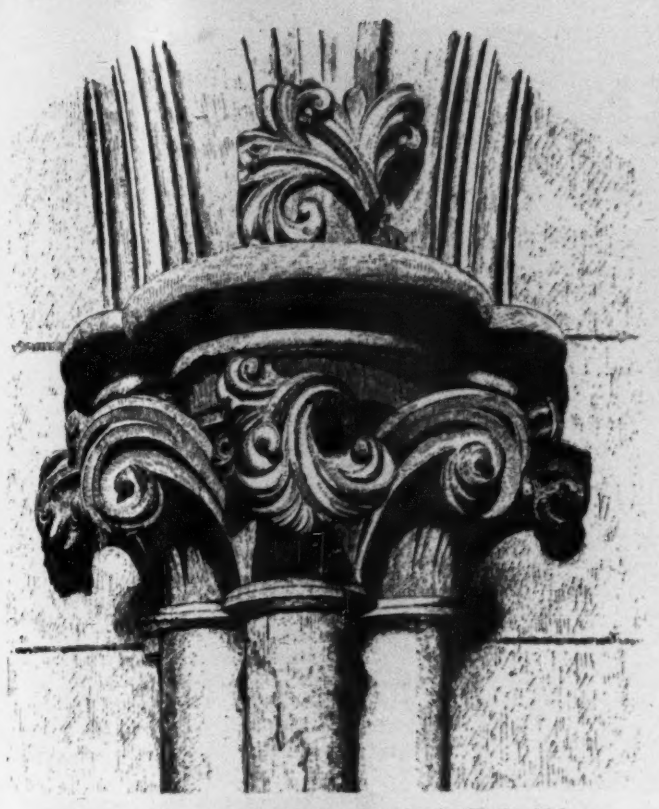
Winchester Cathedral. The works of consolidation at Winchester Cathedral, which have been in progress for several years, have now reached their final stage. The cost has been very great, but 8,000*l.* is still required to complete the work of making the structure secure. The portion now in hand is the south side of the nave, which, apart from the defective nature of the subsoil, was weakened by the removal of the cloisters in the reign of Elizabeth, as no longer needed and for the value of the lead. The new foundations are carried down below the strata of water and peat to the underlying gravel, and the Norman wall of the nave is to be supported—a much-debated project—by a range of pinnacled buttresses of perpendicular design with panelled sides projecting 16 ft., but pierced with arches to provide a footway.

Remains of various periods have been unearthed in the course of the excavations. These comprise some dating from the Roman occupation, others, such as a ring, chalice, and patten and the remnants of a rich vestment, indicate the site of the burial place of a prior.

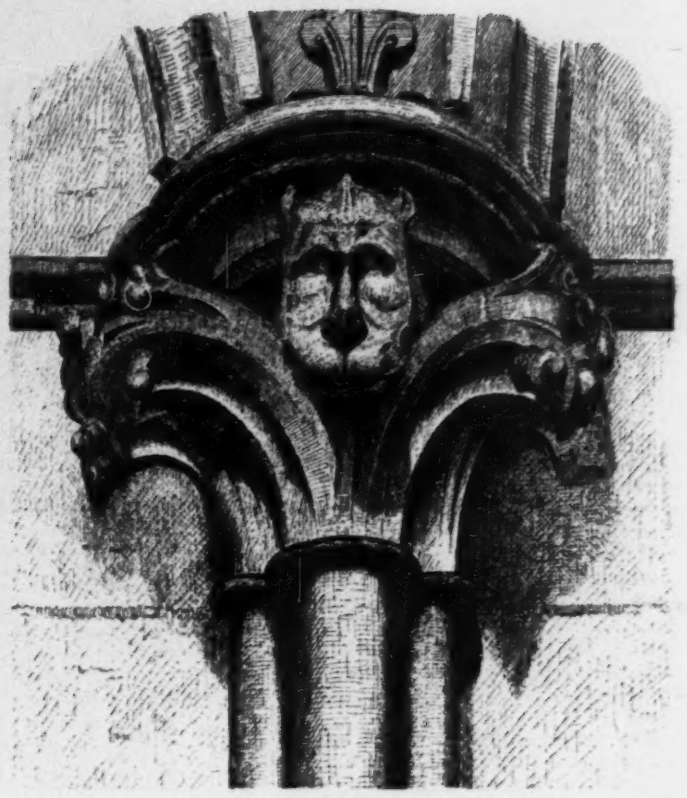
Egyptian Portraits for the National Gallery. The most important finds of the British School of Archæology in Egypt, exhibited this summer at University College, are from Hawara, and consist of portraits of the dead. In regard to these Professor Flinders Petrie, under whose supervision the researches have been carried out, said to a representative of the *Daily News*:—

"The first series was discovered as far back as 1888, and some of the finest are in the National Gallery. Some of the best of recent finds will be added to that collection. They are portraits of men and women, and, judging from the style of dressing the hair, one cannot be far out of place in fixing the date from A.D. 100 to 250. A few are painted on canvas, which appears to have been an earlier custom than the use of cedar panels. Some are painted in thin colour, apparently water-colour, perhaps with white of egg as a body. The greater number are painted with coloured wax, laid on in a melted state with a brush."

Lincoln Minster. Mr. Francis Bond and Mr. William Watkins contributed to the Royal Institute of British Architects' *Journal* last year two papers which have caused a great deal of discussion. The plea "for the reconsideration of the accepted account of the building



Lincoln Minster: Wall Arcade, North Choir Aisle.



Lincoln Minster: Wall Arcade, Chapter House.

operations which went on in Lincoln Minster from 1192 to 1255," did not convince Professor Lethaby, who, with others, felt that the scheme set forth was so extraordinary that it could only be accepted on overwhelming evidence. Briefly, Mr. Bond and Mr. Watkins sought to prove fallacious the time-honoured belief that the choir of Lincoln Minster as we see it now is that of which St. Hugh of Avalon is supposed to have laid the foundations in 1192. Mr. Bond is convinced that both choir and transepts were originally unvaulted. Mr. John Bilson, on the other hand, thinks that beyond doubt Lincoln was planned from the first, and built, as a vaulted church. Whether or not the present triforium arcade is original and part of St. Hugh's work, the subject is of absorbing interest; for Lincoln, "Canterbury done into English," is one of the most remarkable cathedrals in this country. The beautiful examples of Early English scroll work and foliage, shown in our reproductions of drawings by Mr. H. G. Webb, are features in which the building is particularly rich.

Excavations at Vale Royal. The hitherto unknown whereabouts of the Cistercian Abbey of Vale Royal which once stood at what is now Lord Delamere's seat in Cheshire have been ascertained by recent excavations carried out by Mr. Basil Pendleton, architect, of Manchester, an account of which has been published in the *Manchester Guardian*. Vale Royal was founded by Edward I. in performance of a vow made at sea when in danger of shipwreck, and the site is said to have been pointed out by angels and miraculous flashes of light. The King laid the foundation stone in person in 1277, but the Abbey was not consecrated till 1330, or finished till after that date. It was purchased by Sir Thomas Holcroft at the Dissolution of the Religious Houses, and used as a quarry for building stone, which is scarce in the neighbourhood. The entire fabric was thus razed to the ground, and practically no remains were visible.

It is now seen that the modern mansion is built upon the foundations of the buildings forming the west and south sides of the cloister, which stood to the south of the church. The latter proves to have been one of the very largest in the kingdom. The north transept is 70 ft. square, and the total length of the church is over 400 ft., exceeding Fountains by some 15 ft.

Modernity at Avignon. If one were asked to instance the most flagrant example of the intrusion into reality of the spirit which actuated Mark Twain's hero in the realm of vulgar farce, one would give the occurrences at Avignon, which became known last week. A certain pushful panderer to the baser palate of modernity offered the Municipality of the city of the Schism a considerable sum for the privilege of giving spectacles and pageants through the medium of a cinematograph within the walls of the Papal palace itself. What a setting for his vibrant travesties! And, indeed, the city authorities, as ready as temporary custodians often are to sell their heritage in trust for the customary mess of immediate gain, were for favouring the speculator's aspirations, and proposed to give them play. The Government, however—out of no consideration of the feelings of the Papacy, one must suppose, since they are now officially embittered and divorced—decided that the danger of fire to the fabric justified them in prohibiting the deal. Which is one way of preserving from desecration the sanctity of a shrine of the Historic Muse.

Lincoln Minster: Wall Arcade, South Choir Aisle.

THE BUILDING TRADE.

MEDIÆVAL BUILDERS AT WORK.

IT is very probable that to many the idea has more than once occurred how interesting it would be to see, if even but for a few moments only, the operations of building as they were actually in progress in the Middle Ages.

We cannot indeed see mediæval builders at work, but fortunately we can see drawings of such operations drawn by those who lived at the time.

Such drawings exist in the form of miniatures in mediæval volumes. To-day we place before our readers reproductions of eight of these little pictures. They represent a good deal of the building machinery and tools in use in the Middle Ages, as well as the dress of the working men operating them.

The pictures reproduced are all of the XVth century, and for the most part were executed in France, one alone being of English execution. They are faithful representations of actual scenes, and the shape and form of each tool is carefully drawn.

It will be at once noticed that in most cases the pictures are remarkably realistic—

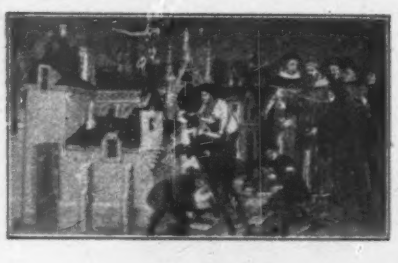


Fig. 1.

the straight-edge thrown down on the ground, the squared stones lying about, and many other details lend a wonderfully vivid sense of reality to each little scene portrayed.

Our illustrations do not give an example of the hand mortar-board, the pictures in

Fig. 2.

which such occur offering little attraction except the representation of such boards. The mediæval mortar-board was exactly similar to that in use to-day. An example may be seen in the British Museum MS. 20 A.V.

The following orders respecting the hours of English working men in the XVth century will be found of interest in connexion with our pictures. The original document has been printed in Mr. Leach's "Beverley Town Documents," page 56.

From Easter to August 15, work began at 4 a.m. and continued till seven. At six a quarter of an hour might be taken for drinking, at eight half an hour for breakfast, at eleven an hour and a half for dinner and rest, at three half an hour for drinking.

After August 15 work lasted as long as it was light enough to work by. For breakfast half an hour was allowed at nine o'clock, and an hour at twelve for dinner; at three a quarter of an hour was allowed for drinking.

The Illustrations.

The originals of our reproductions are to be seen in the Department of Manuscripts at the British Museum. The pictures so clearly tell their own story that little explanation need be added.

No. 1 (*MS.* 20 *B. xx., page* 82).—This little picture was painted in France. The manner in which the hod was carried up the ladder is well shown. The mediæval hod, though borne on the shoulder, as it is to-day, had no stick. In the Middle Ages it was known in England as a "hott."

No. 2 (*MS.* 20 *E. ii. page* 262).—The interest of this picture lies perhaps chiefly in the arrangement of the scaffolding; the level, square, and compasses, etc., are faithfully depicted.

No. 3 (*MS. Harl.* 4,376, *page* 150).—In these four little pictures, which are of French execution, though we see a large number of tools employed, mallet and chisel, trowel, etc., the most remarkable feature

Fig. 5.

of the picture is the machinery for lifting weights.

No. 4.—This picture is from page 206 of the same volume from which No. 3 has been taken. It is of value for its representation of a heap of mortar, etc. A little picture

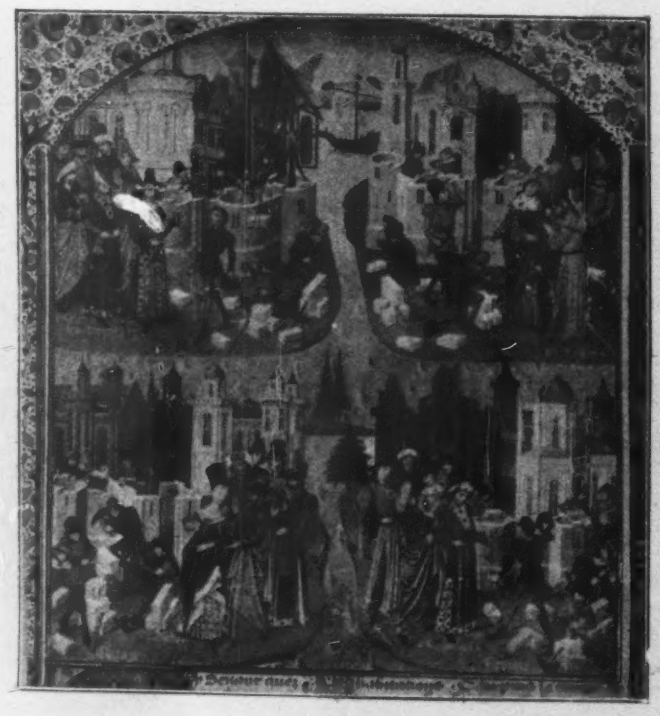


Fig. 3.

Fig. 4.

Fig. 6.

Fig. 8.

on page 2 of the Museum MS. Harl. 621 (which, had it been sufficiently clear, would have been included in our reproductions) also represents a heap of mortar ready for use. Near to the mortar is a frame on three legs, apparently designed to hold the hod whilst it was being filled.

No. 5 (*MS. Nero E. ii., page* 73).—This little picture was painted in France.

No. 6 (*MS.* 19,720, *page* 27).—This picture is of French execution. Here we have a wonderful representation of mediæval building, the whole scene being full of life and activity, and introducing to our notice several new features. The frame saw operated by two men, the winch, and the wheelbarrow are all carefully drawn and very noteworthy. Barrows in the Middle Ages were, roughly speaking, of two kinds—one the barrow such as depicted here, the other a form which is perhaps best represented by the barrow in use to-day in English brickyards.

No. 7 (*MS Aug. A V., page* 22).—Here we see the plumb line and level in use.

No. 8 (*MS. Harl.* 1808, *page* 30).—This picture supplies us with no additional feature, but it has a special interest of its own in the fact of its being of English workmanship.

Fig. 7.

MIDDLESEX NEW GUILDHALL.

At a special meeting of the Middlesex County Council on August 10, it was reported that fifteen firms had been invited to tender for the erection of the new Guildhall, and all had accepted, the figures being as follows:—J. Carmichael, 73,360*l.*; Dove Bros., 73,375*l.*; Leslie & Co., 75,049*l.*; Patman & Fotheringham, 75,723*l.*; Holloway Bros., 75,940*l.*; Wallis & Sons, 76,820*l.*; Lawrence & Son, 77,820*l.*; W. Johnson & Co., 78,300*l.*; Mowlem & Co., 78,941*l.*; Holliday & Greenwood, 78,988*l.*; Henry Lovatt, 79,470*l.*; Coster & Dicksee, 79,997*l.*; F. & F. H. Higgs, 79,997*l.*; Treasure & Co., 80,495*l.*; Chas. Wall, 82,161*l.* The architect's estimate was 80,000*l.* The Committee recommended that the tender of J. Carmichael, Wandsworth, be accepted. The chairman (Alderman Regester), in moving the adoption of the report, said the figures came well within the amount for which it was stated the new building could be erected. The tenders were extremely satisfactory, and he thought that the Council had every reason to be satisfied, both with the architect and the quantity surveyor, for the manner in which their work had so far been carried out. Mr. Warnford-Davis, in seconding the motion, said he could not recall an occasion in his experience when the tendering for such a big job had been so remarkably close. In replying to a question, the chairman said that twenty-one months had been allowed for the work to be completed. The consent of the Local Government Board had not yet been obtained, but the outstanding question was purely in regard to a detail, as to accommodation in cells, and he had no doubt the Council would obtain the Board's consent. The recommendation of the Committee that the tender of Mr. Carmichael be accepted was unanimously passed.

GENERAL BUILDING NEWS.

NEW CHURCH, WESTON-SUPER-MARE.

The contractors for this work are Messrs. C. A. Hayes & Sons, and the estimated cost of the work is 7,800*l.* The designs were prepared by Mr. G. P. Fry, architect, of Weston-super-Mare.

CHURCH, KINGSKERSWELL.

Mr. F. G. Moore, A.M.Inst.M.E., of Torquay, is the architect of this building, which has been erected at a cost of about 600*l.* The contract was carried out by Mr. H. Phare, builder, of Torquay.

CHURCH, ST. ANNE'S.

The designs for this church were prepared by Messrs. T. E. Davidson & Sons, architects, of Newcastle, and the accommodation is for 500 people. The builders were Messrs. F. T. Salmon & Co., of Cudworth.

SYNAGOGUE, SOUTHEND.

This building, the foundation stone of which was laid recently, is to be erected at a cost of 2,070*l.*, not including heating and lighting. The contractors are Messrs. E. Loaney, and the architects are Messrs. Bertram, Parkes, & Evans.

NEW COLLEGE, DUNDEE.

A new training college is to be erected in Dundee at an estimated cost of about 60,000*l.*, and the building will cover about one and three-quarter acres of ground. The architect for the work is Mr. T. Martin Cappon, F.R.I.B.A., of Dundee.

BATHS, WOOD GREEN.

Swimming, douche, and slipper baths have been built by Messrs. Davey, of Southend, at a cost of about 10,000*l.* A sliding roof has been constructed, and an up-to-date laundry is attached. The architect for the work is Mr. Harold Burgess.

RAILWAY STATION, MONTREAL.

The new headquarters for the Canadian Pacific Railway Company have been erected from the designs of Mr. W. S. Painter, the architect to the company, and it is expected that the building will be ready for occupation by the early part of next year. The contractor is Mr. C. E. Deakin, and the contractors for the steel work were the Dominion Bridge Company.

TRADE NEWS.

The fireproof partition blocks (hollow and solid) for Mark-lane Station, Metropolitan Railway, are being supplied by Messrs. J. Wright & Co., of New Malden, Surrey, and

9, Regent Street, S.W. The contractors are Messrs. Ford & Walton, High-road, Kilburn.

Nos. 167/169, Great Portland-street, W., are being rebuilt by Messrs. E. A. Roome & Co., of 36, Basinghall-street, E.C., and Homerton, N.E. Messrs. Roome are executing alterations at 90, Commercial-street, under the superintendence of Messrs. Still, Wheat, & Luker.

PENDING TROUBLE IN THE BUILDING TRADE.

Following on the successful strike of transport workers, it is stated that preparations are being made for a similar strike amongst the labourers employed in the building trade. For some time past there has been much dissatisfaction among the men over wages, hours of labour, and general conditions of employment. Probably the movement will be undertaken by the Transport Workers' Federation.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERDEEN.—Additions, Robert Gordon's Technical College; the Governors. Picture palace, Union-street, The Britannia Cinematograph Theatre, Ltd.

Abertillery. — Forty-five houses; Cramlin Building Club.

Aberystwyth.—Club house (1,300*l.*), for new Golf Club.

Alresford (Hants).—Master's house, Perin's Grammar School; the Managers.

Ancoats. — School, George Leigh-street (8,100*l.*); Mr. J. H. Reynolds and Mr. C. H. Wyatt, Secretaries, Education Committee, Manchester Town Council.

Ashton-under-Lyne.—Sunday school (1,000*l.*); the Trustees, Hurst Brook Primitive Methodist Chapel.

Atherton.—Engine-house, etc., for Atherton Cotton Spinning Company.

Audenshaw.—Proposed church; Trustees, St Stephen's, Denton-road Mission.

Aylsham. — Alterations to laundry, etc. (2,300*l.*); Mr. J. H. Gidney, Clerk, Board of Guardians, Aylsham.

Baguley.—Converting hospital into consumptive sanatorium; Mr. Harry F. Bull, Surveyor, Cheshire County Council, Chester Castle.

Ballywater (Down).—New rectory; the Vicar.

Batley.—Alterations to Wilton Arms, Commercial-street; the Managers.

Bexley.—Proposed baths; Mr. W. T. Howse, Surveyor, Bexley Urban District Council.

Biggar Bank.—Tramway waiting-room and conveniences (600*l.*); Mr. Arthur Race, Surveyor, Barrow-in-Furness Town Council.

Bishop's Stortford.—Proposed assembly hall, Bishop's Stortford College (3,500*l.*); the Governors.

Bispham.—Additions to Endowed School; the Trustees.

Bitterne Manor.—Proposed infants' school; Mr. W. J. Taylor, Surveyor, Southampton County Council.

Blackwood.—Police station, etc.; Mr. Wm. Tanner, Surveyor, Monmouthshire County Council, Newport.

Blaengawr.—Three hundred houses; International Colliery Co., Ogmore Vale.

Bolton.—School (11,800*l.*); Mr. F. Wilkinson, Secretary, Education Committee, Bolton Town Council.

Bridgtown.—School (2,400*l.*); Mr. S. Wooton, builder, Bloxwich.

Bridgwater.—Court-house and police station (7,350*l.*); Mr. J. E. Fursland, builder, Bridgwater.

Bridlington.—Christ Church Parish Hall (1,700*l.*); the Trustees.

Briton Ferry.—Projected works for the North Central Wagon Company.

Brockenhurst. — Enlargement of church school; the Managers.

Bury.—Shop and three houses; Bury District Co-operative Society. Alterations to bank, Fleet-street, for Parr's Bank, Ltd.

Camborne (Cornwall).—Alterations to Basset Arms for the Redruth Brewery Company.

Castiederg.—Residence (1,000*l.*); Messrs. R. E. Buchanan & Co., architects, Londonderry.

Chapel-en-le-Frith.—Extensions to Town End Foundry; the Managers.

Clydebank.—Public library; Messrs. Stewart & Patterson, architects, 14, Blythswood-square, Glasgow.

Colebrook.—New Vicarage (1,000*l.*); the Vicar.

Cowie.—Three hundred houses; Alloa Coal Company, Cowie.

Cwm.—Fifty houses; Architect, care of Mr. D. C. John, Town Clerk, Swansea Town Council.

Cwmfelinfach.—Workman's Institute; Mr. R. L. Roberts, architect, Abercarn.

Damerham (Hants).—Extensions to Council Education School; the Managers.

Denbigh.—Extensions to Howell's School; the Governors.

Dewsbury.—Fire stations; Mr. H. Dearden, Surveyor, Dewsbury Town Council.

Doncaster.—School (1,900*l.*); Messrs. Dunn & Mendham, architects, Birmingham.

Dover.—St. Mary's Parish Hall (1,320*l.*); Mr. G. Munro, builder, Union-road, Dover.

Dumbarton.—Alterations to poor house (2,600*l.*); Mr. J. Briggs, Surveyor, Dumbarton Town Council.

Eastleigh.—Technical school and pupil teachers' centre; Mr. W. J. Taylor, Surveyor, Southampton County Council.

Edenfield.—Liberal Club, Elm-street; Secretary, Liberal Club, Ramsbottom.

Edmonton.—Three workshops (900*l.*); Architect, care of Mr. F. Shelton, Clerk, Board of Guardians, Edmonton.

Eldon.—Church hall, St. Mark's (1,400*l.*); the Trustees.

Elham.—Hospital (3,500*l.*); Clerk, Board of Guardians, Elham.

Epping.—Infirmary, etc. (7,950*l.*); Messrs. F. Forrester and H. White, Surveyors, Epping Rural District Council.

Erdington.—Conservatory and two sets of double green houses (950*l.*); Mr. H. H. Humphries, Surveyor, Erdington Urban District Council.

Farley Chamberlayne (Hants).—School; Mr. W. J. Taylor, Surveyor, Southampton County Council.

Frimley.—St. Andrew's Church, Frimley Green (2,000*l.*); the Trustees.

Gillingham.—New mission hall; Deacon J Ebenezer, Congregational Church, Gillingham.

Glenageary.—New parish hall, Adelaide-street; Messrs. W. Mitchell & Sons, architects, St. Stephen's Green, Dublin; Messrs. Collen Bros., Ltd., builders, 5, Clanwilliam-place, Dublin.

Guildford.—Twenty houses (3,400*l.*); Mr. C G. Mason, Surveyor, Guildford Town Council. Conversion of old corn market into Council Chamber (1,000*l.*); Mr. C. G. Mason, Surveyor, Guilford Town Council.

Halstead.—Proposed baths; Mr. Walter Cressell, architect, Colchester.

Harrogate. — Warehouse, Regents-parade, Harrogate, and District Co-operative Society.

Hemel Hempstead.—School, Two Waters (3,200*l.*); Mr. O. P. Drever, builder, Kettering.

Hove.—Factory; Mr. Wm. H. Overton, architect, Warnham House, 22, Ship-street, Brighton. The following plans have been passed:—Additions, Goldstone House, Fonthill-road; Mr. G. H. Burstow for Mr. J. J. Clark. Conversion premises, 69, Church-road, into flats and shop; Messrs. Albery & Lawrence for Mr. A. W. Wells. Additions to garage, Seafield-mews; Mr. F. C. Axtell for Mrs. Youle. The following plans have been lodged:—Garage, Langdale-gardens; Mr. G. H. Burstow. Sixteen houses, Tandridge-road; Mr. S. H. Burdwood.

Howden.—Isolation hospital; Mr. J. Anderson, Howden Rural District Council.

Ilkeston. — School, Binnerley-street (340 places); Mr. W. Lissett, Secretary, Education Committee, Ilkeston Town Council.

Itchen.—Additions to Ludlow-road School (350*l.*); Mr. W. J. Taylor, Surveyor, Southampton County Council.

Kenilworth.—School; Mr. J. Willmott, architect, 6, Waterloo, Birmingham.

Killiney and Ballybrack.—Dwellings for Urban District Council; Messrs. Millar & Symes, architects, 60, Dawson-street, Dublin.

Knottingley.—Extensions and alterations at National Schools (920*l.*); Mr. J. H. Waite, builder, Calder-grove, Crigglestone, Wakefield.

Lakenham.—School (370 places); Messrs. H Ramage and D. O. Holmes, Secretaries, Education Committee, Norwich Town Council.

Lambourn.—Sanatorium; Mr. John Bowen, Surveyor, Town Hall, Reading.

Langley Green.—Pattern shop, etc., at works of Messrs. Ham. Baker, & Co.; Messrs. D. & A. Homo-Morton, architects, Birmingham; Mr. G. A. Horton, builder, Brierley-hill.

Leiston.—Enlargement of school (600*l.*); Mr. W. E. Watkins, Secretary, Education Committee, East Suffolk County Council.

Liversedge.—New stores; Secretary, Mutual Co-operative Society.

Loughborough. — Extensions to factory premises, Derby-road, for Messrs. Hanford & Miller.

Maghera (Co. Derry).—Additions to St. Patrick's Church; Mr. J. McGrath, architect, Commercial Buildings, Foyle-street, Londonderry; Messrs. J. Ballintine & Co., Ltd., builders, Strand-road, Londonderry.

Maghull.—Extensions to Maghull Home for Epileptics; the Managers.

Manchester.—Tower and spire, St. Alban's Church, Waterloo road (1,300*l.*); the Trustees.

Mathill.—Additions to school; Mr. Chas Ewing, architect, Grieff.

Monkton.—School (950*l.*); Mr. W. Reid, architect, Prestwick.

Morriston.—Extensions to tin plate mills for the Dyffrin Tinplate Company.

Mottingham (Kent).—Almshouses for Ironmongers' Company, 117½, Fenchurch-street, E.C.

Newport (Mon.).—Assize and law courts; Architect, care of Mr. S. S. Newman, Town Clerk, Newport Town Council.

Ogmore Vale.—Two hundred houses; Messrs. Lewis Merthyr Company, Ogmore Vale.

Panteg.—Alterations and additions, St Hilda's Church School; the Trustees.

Penistone.—New offices and public hall, adjoining free library; Mr. J. Swift, Borough Surveyor, Penistone Urban District Council.

Penybont.—Forty houses, The Craig, Ceyn Cribburn; Mr. R. Rankin, builder, Penybont.

Penypark.—Improvement at Council School (300*l.*); Messrs. Michael & Son, builders, Cilgerran.

Plymouth.—Adaptation of old free library for rate offices; Mr. J. Paton, Borough Surveyor, Plymouth Town Council. Cleansing station, Granville-street (170*l.*); Mr. J. Paton, Borough Surveyor, Plymouth Town Council. Extensions to St. Boniface School, Girls' Department (eighty places); Mr. J. Paton, Borough Surveyor, Plymouth Town Council. The following plans have been passed:—Alterations and additions to premises, 35, Mutley-plain, for the Plymouth Co-operative Society. Alterations and additions to premises at rear of 102 and 103, Old Town-street, for Messrs. Butt, Vosper, & Knight. Store at Addison-road factory, for Messrs. Clatworthy & Co., Ltd. Alterations and additions to Ear and Throat Hospital, North-street; the Managers. Store buildings rear of premises, Frankfort-street, for Messrs. Winnicott Bros. The following plans have been lodged:—Motor garage, rear of premises, 25, Athenæum-street, for Mr. A. J. Coker. School buildings at public school, Coburg-street; Mr. W. H. May, architect.

Pontefract. — Baths, Headlands Estates (4,500*l.*); architect to be appointed.

Portrush.—Hotel, café, and shop, Egbuton-street; Mr. A. J. Clark, architect, 2, Craigvara, Portrush.

Reading.—Mortuary; Mr. John Bowen, Surveyor, Reading Town Council.

Romford.—Four shops, Balgores-square, for the Colonade Construction Company.

Ross.—Free library; Mr. A. H. Pearson, Surveyor, Ross Urban District Council.

Sandown.—Enlargement of fire station, also convenience (360*l.*); Mr. Leslie P. Dashper, Surveyor, Sandown Urban District Council.

Scunthorpe.—School (11,200*l.*); Messrs. D. Gill & Sons, builders, Nether Hall-road, Doncaster.

Sholing. — Additions to Infants' School (510*l.*); Mr. W. J. Taylor, Surveyor, Southampton Council Council.

Sleaford.—Drill hall, Church-lane, for the Church Lads' Brigade.

Spennymoor. — Council hall, business premises, etc.; architect to be appointed.

Stafford.—Public library; Mr. W. Plant, Borough Surveyor, Stafford Town Council.

Street.—Housing scheme (7,000*l.*); Mr. J. Pursey, Council Surveyor, Street Urban District Council.

Sunderland.—Alterations to St. Paul's Church, Meaburn-street; the Trustees.

Thurso, N.B.—Hospital, Durnars-street; Surveyor, Thurso Town Council.

Tunbridge Wells.—Rebuilding Bell Hotel, Mount Pleasant; Messrs. Strange & Sons, builders, 34, London-road, Tunbridge Wells.

Walesby.—Church (2,000*l.*); the Trustees.

Walsall.—Underground convenience, The Bridge (1,600*l.*); Messrs. Henry Gough & Sons, builders, Countess-street, Walsall. The following plans have been passed:—Premises, Bullocks Fold, Bloxwich; Mr. S. Wilkes. Extensions to premises, Neale-street; Messrs. Walsall Locks and Cart Gear Company. Five houses, Green-lane, Leamore; Mr. J. Wilkes. Alterations to premises, The Bridge; Walsall Unionist Association. Additions to Staffs Ironworks, Green-lane; Messrs. Thos. Smith's Stamping Works Company. Warehouse, Wisemore; Messrs. Withers, Ltd. Rebuilding premises, Park-street; Messrs. Butler Bros. Warehouse, Charles-street; Messrs. British and Colonial Horse Shoe Company, Ltd. Casting shop, Hatherton-street; Mr. T. L. Hale. A plan has been lodged for extensions to premises, Bath-street, for Messrs. Matthew Harvey & Co., Ltd.

Warmley.—Isolation hospital; Messrs. H. M. Bennett and M. E. Fitzgerald, Surveyors, Warmley Rural District Council.

Winchester.—Eighty-two houses; Winchester Working Men's Housing Company, Ltd.

Woolston.—Proposed technical school and pupil teachers' centre, adjoining Sholing Boys' School; Mr. W. J. Taylor, Surveyor, Southampton County Council

---

* See also our list of Competitions, Contracts, etc., on another page

THE PRESERVATION OF OLD BUILDINGS.

On March 1 Mr. W. A. Forsyth, F.R.I.B.A., read a paper before the Manchester Society of Architects on "The Preservation of Old Buildings," from which we take the following:—

"I propose to direct my remarks towards the principles involved in the maintenance of an average English village church or manor-house, and in so doing will endeavour to avoid reference to much that is generally accepted, while considering firstly what shall be preserved, and then the means to be adopted.

In all cases great efforts should be made to maintain all that is fit and sound, and all that is repairable in order to express the history or evolution of the building, apart from considerations of taste or fashion, and in many cases of convenience.

It is no hardship to adapt one's mode of living to the internal arrangement of an old house. It is always possible to make full use of a mediæval church for the ordinary purposes of worship, although the accommodation for accessory functions may be missing. Similarly, all the fittings and parts of these old places should be respected and perpetuated.

The Town Planning Act of our own time respects ancient monuments, even though the realisation of the municipal authority's great scheme is thwarted by the position of an historic building. In that matter it is a subject of congratulation that the Legislature has come to its senses in preventing destruction of historic monuments by public improvements.

The necessity, however, for some legislative protection of our ancient churches is becoming more apparent day by day. The clergy are but the temporary custodians of their churches, yet it is a frequent occurrence to find a newly-appointed vicar anxious to mark his acceptance of office by the promotion of a scheme of additions or changes in the structure with which his many predecessors found it convenient to disperse.

Village churches are national monuments, and, as such, should be protected by the Legislature.

The Ecclesiastical Commissioners have opportunities for undertaking work of this kind, but their methods and processes do not fit them for the task. Their sympathies are not entirely directed to the monumental aspect of the subject, and, moreover, no single body or institution can undertake the supervision of all the actual work or, indeed, so much responsibility.

In the types of buildings we are considering it is of paramount importance that the repairs or other operations should have enduring qualities.

The church and the manor-house have survived centuries of use and climatic resistance because of the solidity of parts, simplicity of construction, excellence of materials, and sound workmanship. These are the qualities which are necessary to our repairs. Is it not pathetic to find an historic London church having is Victorian restoration renewed at this early date?

It is also important that all works be given reasonable time in execution.

The state of repair arises in most cases from the unequal settlement of walls. Roof thrusts, movement of soil, surface and underground drains, and other excavations are the chief contributory causes. Very frequently walls are found to incline at dangerous angles, and are very often rebuilt without full investigation, whereas a study of the roofs, the foundations, the drains, and any apparently recent movements would perhaps lead to the retention of the work.

Drawings.

Before anything can be attempted in the way of restoration or the actual work of repair begun, complete and careful drawings must be made. These drawings must accurately represent all irregularities of plan and inclinations of walls and floors. This can only be shown when all drawings are free-hand. A ruled plan or elevation cannot be accurate.

A specification in complete detail is essential, and all practical operations as well as the use of proper materials must be clearly described.

The drawings will serve to show the approximate extent of the work. Careful measurements reveal surprises in the structure not otherwise to be ascertained.

Photographic records are also valuable.

All the materials of floors, hearths, wall, ceilings, roofs, and other features on the drawings should be described. The condition of repair, together with an historical survey, should be embodied in a general description of the work prior to repair. Tenders should be avoided; they lead to an unsympathetic handling of an old building. An approximate estimate, combined with a schedule of prices for labour and materials, and, above all, an honest builder, is all that one may reasonably ask for. I know of no more satisfactory method than a 10 per cent. profit arrangement and schedule of prices. The architect must be competent, and not too busy personally to supervise the work.

Speed in Building.

It must be admitted that, apart from other influences, the survival of ancient building works is due in great measure to the actual duration of the building operation.

Buildings of permanent intention, constructed for peaceful enjoyment and not defensive purposes, must receive climatic considerations in erection or repair. Foundations or underpinning should not be undertaken until the drainage of the soil is completed, or the ultimate condition of the land assured. Shoring should be perhaps unduly strong and allowed to stand for an excessive time before being struck. Brickwork in lime mortar cannot be hurried, and must be built in a very wet state and allowed to set before receiving weights, thrusts, or other causes inducing movement. Plastering should be not unduly delayed, but a long period of setting should be allowed. Strong draughts should be excluded, as well as heat and other influences inducing rapid setting. Materials resembling the old should, of course, be used, and this will exclude the use of patent plastering processes from the building, and, incidentally, from the scope of this paper.

Roof timbers which have been exposed to sun and rain should have reasonable time to return to their normal seasoned state when roof coverings are finished, before such things as ceilings are erected.

Good work, therefore, requires proper time for its execution.

Foundations.

It is remarkable that the types of structures we are considering received comparatively little attention in the matter of foundations. In the majority of cases little or no increase of width was made, but reliance was placed entirely upon the soil or earth upon which the thick walls were directly placed. Yet it is abundantly clear that foundation work was well understood.

The subsequent laying of drains, putting up of rain-water gutters and pipes, and the digging for graves and heating chambers have caused great havoc to the structure of old walls.

A village church is often very much the better off by the absence of eaves gutters and down pipes. This ensures a more general distribution of roof water. Paving should be laid around the building to catch and remove rain dripping from the eaves and walls. Water concentrated from a valley or from the gutters of flat roofs can be specially dealt with by shoots.

The drains of a house are examined by municipal authorities, to the gain of the inhabitants; those of a church or cathedral take care of themselves, to the detriment of the fabrics.

The incumbent of a church in Norfolk once took me to see the position of a mysterious spring below the north-east corner of his chancel, pointing out the consequent mossy growths inside as well as out, and the existence of active settlements in the wall. A brief examination showed that the entire trouble was due to a broken and neglected rain-water pipe, which had been belching concentrated water into the base of the wall in question for many years. This not an unusual incident.

As illustrating the knowledge in early times of the actions of soils, the following interesting precaution, taken by a XIIIth-century builder, came to my notice in underpinning a buttress and circular staircase of a church tower. At Chattisham, near Ipswich, the land is entirely a stiff clay.

As frequently happens in church towers, the weakest angle is that containing the turret staircase, and in this instance it had, along with a rubble and stone buttress, settled considerably from causes traceable to a defective drain. The remainder of the tower walls were in fair condition.

On examination it was seen that in building the tower a large pit had been dug extending 1 ft. 6 in. beyond the area of the structure. Into this hole, the sides of which were in places clearly disclosed, had been thrown river gravel of coarse quality, and upon it the rubble walls of the tower were erected. It will be noticed that there is an almost entire absence of footings, and that the bases of the walls are perilously near the surface of the ground, yet the tower generally has stood these 600 years remarkably well. The limitations of a clay soil were evidently understood in these mediæval times, and the instance is one by which we should profit.

In some Norfolk churches some unusual yet reasoned provision is made in the foundations. Thus, for instance, at Saxthorpe the foundations consist of thin layers of various materials, the reasons for which are difficult to comprehend. At the bottom of the trench, in a loamy soil, is placed 6 in. of chalk, then follow alternate layers of 3 in. of mortar and 3 in of sifted earth, these two layers repeating three times producing 18 in. in height, and upon this the rubble walls are built.

Rubble Walls.

In rubble walls, all small material, such as flints, pebbles, fragments of stone, bricks, and tiles were mixed with lime mortar. The whole was worked up and laid in a concrete manner in conjunction with stone or brick quoins set in the internal and external angles. My friend Mr. Gaymer, of North Walsham, who has given close attention to this work, assures me that the rubble could only have been laid against boards or centering in the same way as we build concrete. He further assures me that he can point out places in Norfolk where the marks left by the joints in the boarding show upon the mortar faces.

It will readily be understood that the use of angle stones was twofold; firstly, to facilitate the accurate building of rubble, and then to afford greater permanence to the exposed angles from the effects of winds, rain, and frosts.

Rubble walls have been, and are generally to this day, misunderstood by architects and builders. It is their invariable custom to point or key the spaces between the aggregate materials after the matrix mortar has to an extent been removed by weather. The pointing is moreover usually performed with the aid of a metal trowel.

In almost all cases, no pointing is required. The faces exposed to the rainy quarters are those mostly found to have these interstices washed out, but it is only in the dire extremity of the solid materials having become loose, that any repair is necessary, and indeed can be efficiently performed.

Stone facing does not imply strength when the core of the wall is found to be of rubble. As a rule, bonding stones were absent in the great ashlar-faced walls of the early periods, and the slightest failure of footings set up great cracks in the masonry.

In rebuilding dangerous buttresses, I have reset the old stones of the angles and offsets, re-using the general walling materials in concrete fashion. After some small instruction the bricklayers or masons grasp the spirit of the old work, and produce a rubble wall exactly resembling the original, and, what is most important, of apparently considerable durability. Bonding stones to internal angles are essential. It is of great importance that stone or brick work should be effectively worked in with offsets in rubble work.

It is extremely interesting to trace the early attempts at flint facing and the development from the rubble wall. The earlier work, sometimes "boulder," sometimes "napped," had heavy joints and rough laying. The introduction of traceried panels in plinths and parapets produced greater precision and definition in the flints,

until the art culminated (and, indeed, disappeared) in the exquisite work of the late XVth century. The parish churches of Norwich are wonderful examples of the perfection to which flint facing was carried. In all cases flints used in repairs should be "dug," and not used from surface collections.

Stonework.

Roughly speaking, there are nowadays found three distinct schools in the preservation of ancient stone building—each having its enthusiastic adherents. The first may be called the "Limewashers," and the second the "Replacers," and the third the "Fakers."

The creed of the first is very difficult to define, and their operations, complicated as they are, impossible to reason up. If a stone mullion is crumbling to atoms, it is repaired with brick or roofing tiles, and the piece is smeared over with mortar, yet with no intention of desiring to imitate the material of the destroyed feature. They are particularly anxious that their patching should reveal itself for all time. There is a strong sentiment against attempting to repair in the actual form and material of the original, and to a certain extent they are justified by the glaring results of the second school, whose entire creed is to "cut out and replace with new to match," and also to show for a limited period of time that the building has been restored. The delight of the third order is to deceive, and, if the stone mullion cannot be operated upon *in situ*, the pieces are removed and reset in cement or some other medium, or new stone, artificially coloured, is built in so that all evidence of renovation is lost.

It is extremely difficult to say which is the most desirable or correct of the various processes. There are errors and inconsistencies in the claims of each, yet there is much that is necessary in all.

Let us take a City—say, Oxford—which is rich in historic buildings. Everyone regrets the extraordinary condition of decay which has taken place in the Headington stone in buildings of the XVIth, XVIIth, and XVIIIth centuries in that town.

In nearly all cases extensive works of restoration have been carried out during the last few years by the "Replacing" school. At the present time the principal buildings look as if they were new. The Great Tom Tower and south front of Christ's College are practically entirely rebuilt; even the carved ornament is renewed. Drastic measures have been taken, and one cannot but regret that such methods were carried on to so extreme a course. A very interesting work of the "Limewashing" school has, however, been lately finished in the repair of the garden front of St. John's College by my friend, Mr. Redfern. As showing the extreme care exercised in its execution, the architect performed much of the actual work with his own hands.

As in other Oxford buildings, the stonework was in an advanced state of decay, but the method of repair has been that advocated by the Society for the Protection of Ancient Buildings. No new stone has been introduced. All badly-decayed stone was removed, and patches of roofing tiles built in in lime mortar. The red patches were then smeared or rendered with the mortar. Mullions and other features have been similarly treated, and in all cases the sections of the original mouldings have been continued in the mortar patches. I cannot see how this process can be regarded as permanent. Reference has already been made to the failure of the Victorian stucco, which would appear to be similar in treatment. Already parts of the rendering on the face of the parapets are cracking and the tiles grinning through. The edges of these tiles should be dated.

At Westminster Abbey a great work in limewashing is being carried out by Professor Lethaby. The principal original material is a Reigate firestone. Upon most of the exterior this has been, in former times, largely replaced by other varieties of stone by the "Replacing" school. The remaining stone, having external exposure, is fast decaying in the atmosphere of London, but the destruction is being arrested by the simple application of limewash. The operation consists of the slaking with boiling water of Barrow hydraulic lime to produce a comparatively fine solution or paste, and of the application by means of a brush of two or more coats according to the state of decay. To avoid glaring results, some colour is utilised to assimilate the tone of the applied material to its environment.

The process has been going on in the vaulting of Cloisters for some four years, and is found to be a successful "healer" of the diseased stone where applications of other reputed preservatives have failed. In appearance, too, the effect is good, as after the lapse of time the lime appears to have entered into structural combination with the stone and mouldings, joins and other details become sharper and well defined. It is satisfactory to think that the spirit of the beautiful early work in these Cloisters is retained by so simple a process. The idea is not new, for it will have come within everyone's observation that a whitewashed stone wall is often preserved when the untreated surfaces of the same wall have perished. It is in the nature of a revival. This limewash is gentle in its nature. Let us beware, however, of advertised patent preservatives, which claim strong silica for their purpose.

I have been informed that frequently these solutions produce worse results after the lapse of time. The first application penetrates let us say ¼ in. and then hardens. The subsequent coatings cannot therefore penetrate beyond this first treatment, and a thin, hard face is produced. If by any chance the wall receives moisture from behind, or wet gets through the joints or settlements, frost removes the artificially-produced face in unpleasant quantities.

It is very rare that one finds the work of the "replacing with new" creed accurate in its attempt to imitate old work. Take such a simple instance as the piecing of a mullion. The hollows are invariably made too quick, not only failing to resemble the old section, but giving a hard, cast-iron character to the work. The varying substances of the stone tracery in the mullions and cusped heads, difference in internal and external arches, and many another subtlety are not detected, and a harshness again results. Joints are made too thin, and the natural tooling operations of the mason fail to receive expression by the subsequent smooth finish, chiefly produced by the thoughtless use of the "drag."

Of the third school of repair there is much to be said in commendation of its work so long as it is restricted to maintaining what exists. It has, however, become so skilful that it reproduces old features *ad libitum*, resorting to endless devices to complete the deception. New stonework is roughed and injured as though by long use. Steps are worn down to order. Cow-dung solution is applied to represent the effects of external exposure. Moss is cultivated on roofing tiles. Oak receives a sandblast treatment, or is adzed after being previously planed, while limewash stains and other applications produce smoky deceits. Of all this, nothing is to be merited but our contempt.

It has long been my theory that arches, vaulting ribs, and other curved moulded work were erected in a roughly-squared state upon centering, and the mouldings and other enrichments subsequently worked in position. String courses and cornices were perhaps cut before fixing, but circular work, judging by its wonderful accuracy of line, appears to me to have been finished after building.

In proof of this, I recently saw a simple example at Repton Priory of transitional XIIth to XIIIth century vaulting left in an unfinished state. The ribs were built of squared stones roughly tooled. The centre boss has been carved and a few dog-tooth ornaments and a moulding commenced, but never finished, yet the place (now used as a larder) has been in continuous occupation for 700 years. Arches of windows occasionally indicate that the moulded work was prepared before fixing, and in that case there is not the usual freedom of line found in the beautiful work cut *in situ*.

Mr. Gaymer assures me that in examining the stones of vaulting ribs which have fallen or have had to be taken down, the sections of the mouldings vary according to the plane of the joint in such a way that a template could never have been used to strike the outline of the moulding upon the material when lying on the mason's banker. I shall be glad to hear of corroborative experience, but the object in raising the point is to draw attention to the desirability of pursuing similar methods in works of repair.

The Constructional Uses of Metal.

The use of wrought-iron tie rods in taking up thrusts in brick and stone walls, piers, and arcades is one which should receive greater attention from architects. The principle is to be found in early XIIIth-century work, when perhaps the chief example in this country is the reinforcement of the vaulting of the aisles in Westminster Abbey. The earlier ties were made of oak, but wrought-iron was soon substituted, but only a few of the former remaining. Professor Lethaby assures me that this is original work. It is carried out throughout the triforium arches and other places.

In all these cases the metal ties are subjected to more or less the uniform temperatures of the interior. The case is different, however, in the reinforcement, which is again found in the large windows surrounding the Abbey, where the bars take up tensile strains and are independent of the saddle bars of the glazing. Here the metal-work is exposed to great changes of temperature, and the constant movement of the rods is perhaps one of the causes which have necessitated the almost entire restoration of the external stonework. The constructional wrought-iron of Westminster Abbey is a large subject, which will repay a full investigation.

Metal associated with stone, concrete, or brickwork should be sparingly used. Iron ties, cramps, dowels, and saddle-bars have ruined masonry to an alarming extent, and should be avoided when possible. Slate, flints, and pebbles are frequently usable for dovetailed cramps, pins, and dowels.

Tile Roofing.

The repair of old tile roofs is a matter deserving our caution. Into the numerous methods of laying tiles throughout the country, it is not within the intention of these notes to enquire. What is of paramount importance, however, is the quality, and in this respect I would urge the sole use of hand-made, sand-faced tiles to the entire exclusion of machine-made or pressed materials. Old roofs appear to gain in scale and interest when the repairs are visible. It is not always possible to secure old weathered tiles for repairing ancient roofs. Rough, well-burnt materials should, however, be used, and the tiles should possess considerable "camber," not only in their length, but in the width. They should also have generous substance. The cambering of tiles is perhaps the most important quality in their manufacture. Capillary attraction is thereby reduced to a minimum and the air spaces thus formed are valuable for assisting evaporation of moistures, and in preserving the tiles. To exclude draught and driving snow from tiled roofs, it was the ancient custom to lay the tiles in hay or straw. In Norfolk the spaces between the laths were filled with reeds. In each case, however, the packing material was kept away from contact with the ordinary rains, and was confined to the heads of the tiles. Evaporation was but slightly arrested. In all cases counter-battening is essential to the successful use of tiles. These under battens, if laid diagonally will brace the roofs against wind pressures in a wonderful way, and provide a convenient means for fixing laths when plastering between the rafters is desired. The bedding of tiles is to be avoided, as, amongst other risks, the tails are liable to be broken in frosts. Torching is good when used to a limited extent.

The rounded valleys of old roofs are delightful features—to the eye. But it is remarkable to what extent they have been, and, indeed, are always being, repaired. Bedding was the principal method of fixing. I venture to think that most of these old examples were unworkmanlike for the simple reason that in endeavouring to maintain the uniformity of the horizontal courses, the tiles in the centre of the valley lost their "lap"—that is to say, these particular tiles were not made long enough in order to provide adequate lap to meet the flatter slope which the valley naturally answers.

A very good way of producing rounded valleys, although at the expense of maintaining the horizontal courses, is to fir out to a width of 15 in., and to hand "tile and a half's" diagonally up the centre of the valley.

The ordinary courses follow from these middle tiles, and the extra lap in the valley is thus provided for.

Timber.

There is only one timber. It is English oak, and there is no substitute or anything approaching it for power and beauty—when properly used and cut. English oak, probably on account of its slow growth, has a wonderful heart, the virility of which the calculating formulæ are incapable of expressing. The framing of timbers was well understood by mediæval builders, and reached a state of great perfection. The science was applied to walls, roofs, floors, staircases, and the like. The best work of the earlier periods relied upon the one material in the mortices, tenons, pins, dovetails, and joints generally. Wrought-iron was employed in later times, when the practice began to wane, and less thorough methods obtained. It is curious that the acid of oak should attack and corrode iron nails and fastenings, which probably explains much of the earlier disuse of iron with oak. Many a sound timber is removed from an old building because the sap and wany edge is rotten. When occasions arise for repairing an oak roof, it is essential that all work be done in position in order to avoid the taking down of old rafters, tie-beams, or purlins from their first position. Old seasoned material should in all cases be employed, and no attempt made to conceal the lapped or scarfed joint.

The persistent thrust of timber roofs induce walls, piers, and arches to move in a sure, remain firm. It is invariably possible to arrest these thrusts in a simple way without disturbing the inclined masonry. Iron ties should be thoroughly painted before and after fixing. Lead gutters should be taken up in order to examine the condition of wall plates imperceptible manner, whilst the foundations and the ends of tie-beams.

Lead Roofs.

It is perhaps unnecessary to remind architects that cast-lead sheets are preferable to the milled quality. Recasting old lead should be done on the site of the building under repair. Flats should receive a fair slope of at least 1 in. in twenty-five or twenty. Boarding must be run parallel with the fall. Welts should, if possible, be used on church roofs. Wood rolls, when used, should have grooves or throats to arrest capillary attraction. Drips should have similar provision.

Asphalt.

Few materials require more careful selection than asphalt. It is extremely difficult for architects to tell good from bad; it is, however, essential that the bitumen should be thoroughly distilled before mixing with mastic asphalt, and devoid of fibre. It is especially valuable in covering old copings and cornices, rendering their preservation comparatively easy without disturbing the old work.

Thatching is coming into greater use again. The revival would be more general but for the caution demanded by local authorities and insurance companies.

Reed thatching, as laid in the county of Norfolk, is the best material and most attractive in appearance.

Thatching appears to have produced the types of roofs upon which tiled forms have been based. Hipped roofs are distinctly thatchy in their origin. Thatch gables are not the most desirable features for durable building.

Plastering.

In no department of our work is greater care required than in the manipulation and application of plaster. In old buildings greater caution still is necessary in order to secure adhesion of new material to old surfaces. Material is all important.

It is not necessary to remind those concerned with old places of the presence of paintings and other decorative works below old whitewashed faces; the preservation of these colourings is a matter apart from ordinary structural repair, and should only be undertaken by those much accustomed to the work.

Repairs to plan plastered surfaces should extend to the actual defective area: the temptation to replaster a whole wall for smartness and uniformity should be avoided. Limes must be reliable and of known condition. Sand cannot be too coarse or clean. Hair should be obtained from tanneries where the old-fashioned process of detaching by the immersion in lime is still in force. Most hair now in use is removed from hides by means of chemicals, and is in consequence brittle. Plastering can be applied in one coat. No more than two, however, are necessary, and it should always be spread and worked up with wood floats. No trowels are required in this trade.

Smoothness of finish, which is always out of scale, as well as sympathy, is thus avoided in wall treatments. Rough plaster also dries out better than smooth, and causes condensation to a much less degree than fine finishes.

In conclusion, I would urge that, whatever be the nature of the building with the repair of which we are concerned, a complete record should be made of the actual works undertaken, including plans showing the state of the building prior to, and the condition of the work after, repair, a description of the process, and an account of the cost.

This should be made obligatory upon an owner or incumbent."

LAW REPORT.

BEFORE THE OFFICIAL REFEREE
(Mr. MUIR MACKENZIE).

Contractor's Action against Building Owner.
Minter *v.* Waldstein.

THE hearing of this case was continued last week, it being an action brought by Mr. F. G. Minter, a builder and contractor, against Mr. Charles Waldstein, Professor of Art at Cambridge University, from whom he claimed 2,750*l.*, the amount payable in respect of a certificate of Mr. Frederick Wm. Foster, an architect, and in respect of a contract made between the plaintiff and the defendant for the carrying out of alterations and additions at Newton Hall, Harston, near Cambridge. Defendant alleged that the work was defective, and counterclaimed against the plaintiff for 10,000*l.* damages.

Mr. Lewis Thomas, K.C., and Mr. G. R. Blanco White (instructed by Mr. V. Blanco White) appeared for the plaintiff; and Mr. Clavell Salter, K.C., and Mr. F. St. John Morrow (instructed by Messrs. Withers & Co.) represented the defendant.

Further evidence was given on behalf of the defendant's case by Mr. Frederick Arthur Ball, of the firm of Messrs. Ball & Son, quantity surveyors, of No. 6, King's Bench-walk, Temple, and also by Mr. Walter Chas. Gibbs, a quantity surveyor, practising at Cambridge.

Mr. E. B. I'Anson, examined by Mr. St. John Morrow, said he was senior partner in the firm of E. I'Anson & Son, architects and surveyors. He had been in practice for upwards of forty years, was a Fellow of the Royal Institute of British Architects, also a Fellow of the Surveyors' Institution, architect to St. Bartholomew's Hospital, and to several other public bodies. He inspected the roof in question on June 30 and July 20 last. Dealing with the roof over the new wing, the witness said he did not think the work there was what was intended by the specification. It was done in a very rough manner, and, to his mind, there were several defects. To particularise some, he considered that the curbs were very shaky, and the scarf joints seemed to be weak and had sagged. The rafters, in his opinion, should be bird-mouthed to the curb, and the work there was not in accordance with what was described on page 25 of the specification. He also noticed that the spacing of the ceiling joists was uneven. He considered that the rafters, where they joined the curb, were improperly butted. They were not bird-mouthed as he considered they ought to be. He thought that the curb seemed to have moved. Speaking of the quality of the timber in this roof, he should say it was not of the best, but of inferior quality. He also considered that the quality of the timber in the twin roof was not of the best quality. He saw some bad shakes in it. He also found that the rafters were short. It was sought to remedy that by putting pieces underneath. He considered that the general construction of the roof was very defective. He thought that the roof was a very poor specimen of carpenter's work. He noticed differences in the angles of the roof. He thought that the purlins were not properly bedded on the principal rafter. The common rafters ought to be notched on to the purlin and lie flat on it. The tie beam had not been properly wedged up to the king post. He was not with Mr. Murray when he took the levels of the floors, but he (witness) had levels taken, and afterwards tested them with Mr. Murray. He also made some tests as to the spacing of the joists. He had seen Mr. Murray's plans as to the spacing of the joists. He knew that the contract provided that in no case should the joists be more than twelve inches apart. That had not been carried out.

The witness also gave evidence detailing the extent of the various sags which had taken place in certain of the rooms, and generally agreed with the evidence given by Mr. Murray upon that point.

Cross-examined by Mr. Lewis Thomas,

During the time he had been in Court he had heard the prices the plaintiff had paid for the timber. Speaking as an architect, he did not think that the prices the plaintiff paid for the timber were the best prices. He agreed that Mr. Minter would probably know the proper price to be paid for timber, and that he would not be likely to pay the best price without getting the best quality. He did not think that oak, properly seasoned, would develop shakes. He considered that the shakes he saw were more than surface shakes. You could easily distinguish sappy timber, even after it had been saturated with water. What he complained about the cement rendering was that the cement and the hair were not properly mixed. The hair was left exposed on the surface, and it was not work which he should have passed himself.

If it was left rough by the contractor on the direct instructions of the architect, can you complain about that?—Yes, in the way it was carried out.

Do you know that when the plaster was finished Mr. Foster said it was done exactly as he wanted it done?—No, I do not.

Cross-examination continued,

It was quite a common thing, when you had got sagged rafters, to put in solid strutting without disturbing the ceiling. Of course, it was a common thing to find a sagged ceiling in an old house; but one did not expect to find one in a modern one like Newton Hall. He did not know that Professor Waldstein wanted his ceilings in the old style, and "leathery," and so on. He took it that the Professor did not want sagged ceilings, however. Great heat was bad for joinery. Speaking generally, he did not think it fair to have the temperature of a house kept at 84 degrees where there was new joinery; but he did not think it possible to keep a house up to that temperature in the winter.

Mr. Lewis Thomas: Fortunately, the temperature was taken by a thermometer.

Re-examined,

If joists were of equal size, the floor, which was made with the joists fixed close together, would be stronger than the floor would be if the joists were placed wider apart. Badly mixed plaster could fairly be described as being defective.

Mr. James Annan, examined by Mr. Salter, said he was a decorative plasterer, and his business in London and Edinburgh had existed for upwards of one hundred years. He had had forty years' experience himself in plastering work. He went down to Newton Hall last April for the purpose of examining the decorative ceilings. He also went there for the same purpose last Thursday. In April he made an examination of the enrichment of the hall ceiling. He found that the decorative work had started, and that there were two cracks across the rib within a foot of each other. Mr. Murray was afraid that the thing might fall, and asked witness to report upon the matter, and tie it up if necessary. Witness reported that in his opinion there was no immediate danger of the thing falling. He reported that, in his opinion, the work could not be satisfactorily put right without pulling down the rib and stripping and replastering the ceiling. He considered that the cause of the sinking of the ceiling was because the joists had sagged, and the nails which supported the rib had sprung. There were a number of decorative ceilings in the house. He should describe the workmanship of the ceilings as fair average work, but he would not describe it as the best workmanship. In his opinion, the cause of the trouble was the settlement of the building. It was not the fault of the plaster. He found, when he visited Newton Hall last Thursday, that the condition of the enrichment on the hall ceiling had got worse than it was when he saw it in April. That was what he expected.

At the close of the evidence on behalf of the defendant Mr. L. H. Stanborough, a quantity surveyor, practising in Bedford-row, W.C., gave rebutting evidence on behalf of the plaintiff as to the sums he alleged to be due to the plaintiff on the variation account, and also in answer to the criticisms of Mr. Ball, the quantity surveyor, who gave evidence on behalf of the defendant as to that account.

During the course of the cross-examination

LAW REPORT—*Continued on page 204.*

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvii.; Auction Sales, xxii.

Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competitions.

SEPTEMBER 4. — **Newcastle-on-Tyne.** — The Education Committee invite from architects practising in Newcastle designs for a senior mixed school and a junior mixed school, each to accommodate 365 children. Assessor nominated by R.I.B.A.

SEPTEMBER 5.—**Skegness.**—COTTAGE HOSPITAL.—Mr. E. R. Sutton, F.R.I.B.A., Assessor. Premium 15*l.* 15*s.*

SEPTEMBER 9. — **Pontefract.** — SWIMMING-BATHS.—Open to architects of the West Riding of Yorkshire. Particulars from the Borough Surveyor.

SEPTEMBER 12-25.—**Athens.**—COURT OF JUSTICE. —An international competition is instituted by the Ministry of the Interior, for the erection of Court buildings, to cost 160,000*l.* The *Official Gazette* may be seen at the Library of the R.I.B.A.

SEPTEMBER 16. — **Manchester.** — LIBRARY AND ART GALLERIES.—Limited to the ten selected competitors in the first competition. See issue of June 23, p. 780.

OCTOBER 7. — **Barnsley.** — EXTENSION OF BATHS.—The Barnsley T.C. invite drawings for proposed extension of Public Baths. Three premiums are offered. See advertisement in issue of August 11 for further particulars.

OCTOBER 30.—**Holland.**—STAINED GLASS WINDOW.—Designs are invited for a stained glass window to be erected in the University at Groningen. See advertisement in issue of June 9 for further particulars.

OCTOBER 31. — **Marylebone.** — NEW MUNICIPAL BUILDINGS.—Premiums of 100*l.*, 75*l.*, 50*l.* The assessor is Mr. Henry T. Hare, F.R.I.B.A. See advertisement in issue of July 14 for further particulars.

NOVEMBER 1. — **City of St. Petersburg.**—MONUMENT TO ALEXANDER II.—Particulars in our issue of August 13, 1910.

DECEMBER 29. — **Glasgow.** — DESIGN FOR A BRIDGE.—Designs are invited (Alexander Thomson Travelling Studentship) for a bridge. Premiums of 60*l.* and 20*l.* are offered. See advertisement in issue of December 24 for further particulars.

JANUARY 31, 1912. — **Australia.** — DESIGNS FOR FEDERAL CAPITAL CITY.—The Government of the Commonwealth of Australia invite competitive designs for the laying out of this Federal capital city. See advertisement in issue of July 7 for further particulars.

JULY 1, 1912.—**Dusseldorf.**—A plan for the extension of the City of Dusseldorf. Premiums of 1,000*l.* to 375*l.* Conditions on application to the Chief Burgomaster, Dusseldorf.

NO DATE.—**Bristol.**—ALTERATIONS IN THE GRAND HOTEL.—Particulars from Mr. F. A. Jenkins, 44, Corn-street, Bristol.

* NO DATE.—**Cardiff.**—TECHNICAL INSTITUTE.—The Cardiff Education Committee invite designs and estimates for a technical institute. See advertisement in this issue for further particulars.

NO DATE.—**Coseley.**—Plans are invited for a school to accommodate about 200 children. Particulars from the Education Offices, Coseley, near Bilston.

* NO DATE.—**East Sussex.**—NEW HOSPITAL.—The Joint Committee of the East Sussex Hospital and King Edward VII. Memorial Funds invite designs, etc., for new hospital. See advertisement in this issue for further particulars.

NO DATE. — **Nottingham.** — BAPTIST CHURCH AND PREMISES.—Limited to Nottingham architects. Particulars from Messrs. Borke & Jackson, solicitors, King-street, Nottingham.

NO DATE.—**Rochdale Infirmary.**—EXTENSIONS. —Assessor, Mr. Alex. Graham, F.R.I.B.A.

NO DATE.—**Salford.**—Extension of office accommodation on workhouse site at Eccles New-road. Premiums 20*l.* and 10*l.* Particulars from the Board of Guardians, Salford Union Offices, Swinton Cottages, in Salford and district only.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

AUGUST 18.—**Castlewellan.**—BANK.—For building a new branch bank, for the Northern Banking Company, Ltd. Quantities from Messrs. M'Carthy & Brookes, surveyors, Scottish Provident-buildings, Belfast. Messrs. Hobart & Heron, architects, Scottish Provident-buildings, Belfast.

AUGUST 19.—**Bandon.**—BATHS.—Erection of two bathrooms in the Workhouse. Plans and specifications with the Master of the Workhouse.

AUGUST 19. — **Kirkcaldy.**—ALTERATIONS.—For alteration of premises to new offices and showroom. Drawings with Mr. J. Kincaid, Gas Engineer, Gas Office, Kirkcaldy.

AUGUST 19.—**Middlestone Moor.**—CLUB.—Erection of a workmen's club and institute. Messrs. C. Johnston & Son, architects, Cockton-hill, Bishop Auckland.

AUGUST 19.—**Parton.**—ALTERATIONS.—Alterations to the school. Mr J. S. Stout, architect, 36, Lowther-street, Whitehaven.

AUGUST 19.—**Pontneathvaughan.**—DWELLING. —Erection of dwelling. Plans and specification at Half Way House, Glynneath. Mr. A. Morgan, Richmond House, Port Tennant-road, St. Thomas, Swansea.

AUGUST 19.—**Ross.**—ALTERATIONS.—Altering the Free Library premises. Plans and specifications by Messrs. Small & Ashton, architects, Ross.

AUGUST 21.—**Eastling.**—REPAIRS, ETC.—Repairs and painting at the Council school. Specifications by the Committee's Architect, Mr. W. H. Robinson, Caxton House, Westminster. Mr. Thos. Read, Frith, Otterden, Faversham.

AUGUST 21.—**Keighley.**—BATHS.—Construction of bathrooms, etc., at the Workhouse. Drawings seen, and quantities from Messrs. Moore & Crabtree, architects, York-chambers, Keighley.

AUGUST 22.—**Delph.**—RESIDENCE.—Erection of a villa residence. Names to Messrs. J. B. Abbey & Son, architects and surveyors, 34a, New-street, Huddersfield.

* AUGUST 23. — **Barnet.** — CLERK'S OFFICES.— The Guardians of the Barnet Union invite tenders for erection of Clerk's offices at Wellhouse-lane. See advertisement in this issue for further particulars.

AUGUST 23.—**Bradford.**—DEPOT.—erection of a milk depôt. Drawings and general conditions of contract seen, and quantities from the City Architect, Town Hall, Bradford.

AUGUST 23.—**Bradford.**—ROOF, ETC.—For new roof to house in Horton Park; painting in recreation grounds and cemeteries. Drawings seen, and quantities and specifications from the City Architect, Town Hall, Bradford.

AUGUST 23.—**York.**—PULLING DOWN.—For the pulling down of the York Skating Rink, Sycamore Estate. Mr. H. E. Appleton, Liquidator, 28, Pavement, York.

AUGUST 24.—**Blackburn.**—CESSPOOLS, ETC.—Reconstruction of about thirty privies and cesspools to water-closets. Specification and form of tender, on deposit of 10*s.*, from Mr. Wm. Stubbs, Assoc.M.Inst.C.E., Borough and Water Engineer, Municipal Offices, Blackburn.

AUGUST 24.—**Egremont.**—COTTAGE.—Erection of a cottage and out-offices. Drawings and specications at the office of the County Land Agent, Mr. D. A. Gibson, 28, Castle-street, Carlisle.

AUGUST 24.—**London.**—REPAIRS, ETC.—For repairs and painting at the Workhouse, St. Leonard-street, Bromley-by-Bow, E. Specifications from Mr. T. G. Stacey, Clerk, Barnes-street, Stepney, E.

AUGUST 24.—**Willington.**—COTTAGES.—Erection of nineteen cottages, for the Willington Co-operative and Industrial Society, Ltd., Durham. Plans, etc., at the offices of the Society.

AUGUST 25.—**Birmingham.** — ALTERATIONS.— Extension of and alterations to the parcel office. Drawings, specification, conditions, and contract seen with Mr. J. Tosh, H.M. Office of Works, Pinfold-street, Birmingham. Quantities, on deposit of 1*l.* 1*s.*, from the Secretary, H.M. Office of Works, etc., Storey's-gate, London, S.W.

AUGUST 25.—**Uttoxeter.**—REMODELLING.—For remodelling with iron cattle stands, iron sheds, drainage, water mains, etc., the Cattle Market. Quantities from, and plans and specifications at, the office of the Surveyor to the Council, Mr. A. B. Hodgson, Town Hall, Uttoxeter.

AUGUST 26.—**Bamford.**—LODGE.—Erection of a foreman's lodge at the filter beds. Quantities and forms of tender from the architects, Messrs. W. B. Starr & Hall, 12, Victoria-street, Nottingham, on deposit of 1*l.* 1*s.*

* AUGUST 26.—**Frindsbury.** — ALTERATIONS.— The Kent Education Committee invite tenders for alterations to [illegible] dwelling-house at Frindsbury Extra, Wainscot Council School. See advertisement in this issue for further particulars.

AUGUST 26.—**Llanon.**—VILLAS.—Erection of two semi-detached villas. Plans and specifications with Mr. J. Lewis Evans, architect and surveyor, 21, Great Darkgate-street, Aberystwyth.

AUGUST 26.—**Cwm, Mon.**—HOUSE.—Erection of caretaker's house at Duffryn schools, Tallistown. Plans and specification with the Committee's Architect, Mr. H. Waters, M.S.A., Market-chambers, Ebbw Vale.

AUGUST 28.—**Ebbw Vale.**—HOUSE.—Erection of a caretaker's house at Duffryn Schools, Tallistown, Cwm, Mon. Plans, specification, and conditions of contract with the architect, Mr. Henry Waters, M.S.A., Market-chambers, Ebbw Vale.

AUGUST 28. — **Farnborough.**—FIRE-STATION.— Erection of fire-station behind the Town Hall. Deposit of 2*l.* to Mr. J. E. Hargreaves, Surveyor, Town Hall, Farnborough, Hants.

AUGUST 28.—**Fernhill.**—REPAIRS, ETC.—For painting and repairs to the Workmen's Institute. Specification with Mr. J. Rees, architect, Pentre.

AUGUST 28. — **Keighley.** — CONVENIENCES.— Alterations to the sanitary conveniences at Holycroft School. Particulars from the Borough Engineer, Council Offices, Keighley.

AUGUST 28.—**London.**—WARDS, ETC.—Erection of proposed new additional wards, etc., at the Hornsey Cottage Hospital, Park-road, Hornsey, N. Plans, specifications, and information from the architect, Mr. George Lethbridge, F.R.I.B.A., 7, Draper's-gardens, London, E.C.

AUGUST 28.—**Mullingar.**—PREMISES.—Erection of new premises for the Ulster Bank, Ltd. Plans and specification seen with Messrs. Blackwood & Jury, Ms.R.I.A.I., architects, 41, Donegall-place, Belfast. Quantities from Messrs. W. H. Stephens & Sons, 13, Donegall-square, North, Belfast, on deposit of 2*l.* 2*s.*

AUGUST 28.—**Seaforth.**—WORKSHOPS, ETC.— Erection of stables, workshops, sheds, etc. Plans and specification seen, and quantities from Mr. F. Spencer Yates, Assoc.M.Inst.C.E., the Surveyor to the Council, Town Hall, Waterloo. Deposit of 10*s.* 6*d.*

AUGUST 28.—**Swindon.**—SHELTERS.—Construction of shelters at the Workhouse Infirmary, Stratton, St. Margaret. Plans and specifications with Mr. John P. Kirby, Clerk to the Guardians, Union Offices, 100, Victoria-road, Swindon.

AUGUST 28.—**Worksop.**—WARDS, ETC.—Erection of children's wards, extension of adult males' ward, and new kitchens, etc. Drawings and specifications with Mr. A. H. Richardson, architect, Market-place, Worksop. Quantities on deposit of 2*l.* 2*s.*

AUGUST 30.—**London.**—HOUSE.—The Metropolitan Asylums Board invite tenders for the erection of a house at the Western Fever Hospital, Seagrave-road, Fulham, S.W. Drawing and specification, by Mr. W. T. Hatch, M.Inst.C.E., M.I.Mech.E., Engineer-in-Chief's Office of the Board, Embankment, E.C. Deposit of 1*l.*

AUGUST 30.—**Sevenoaks.**—TANK.—Constructing a rain-water tank and plumbing work in connexion therewith at the Isolation Hospital, Otford. Plans and specification seen with the architect, Mr. Ernest Pawley, 86, High-street, Sevenoaks.

AUGUST 30.—**Warwick.**—HOMES.—Erection of a pair of children's homes and appurtenant buildings. Quantities from Mr. F. G. Cundall, M.S.A., architect, 4, Parade, Leamington Spa, on deposit of 2*l.* 2*s.*

* AUGUST 31. — **Leytonstone, N.E.** — NEW FOUNDATIONS, ETC.—The West Ham Union invite tenders for (1) formations of new foundations, etc., to boilers, etc. (2) construction of steel water tank; (3) supply and delivery of Lancashire boiler, at Union Infirmary, Leytonstone. See advertisement in this issue for further particulars.

* SEPTEMBER 1.—**Winchester.**—COTTAGES.—The Managers of the Hursley Estate invite tenders for four pairs of cottages on the Hursley Estate. See advertisement in this issue for further particulars.

SEPTEMBER 2.—**Cardiff.**—RENOVATIONS, ETC.— Repairs and renovations at 13, Northcote-street. [illegible] from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Caroline-street.

* SEPTEMBER 3.—**Barrow-in-Furness.**—OFFICES. —Tenders are invited for the building of new offices for Messrs. Vickers, Ltd., at Barrow-in-Furness. See advertisement in this issue for further particulars.

SEPTEMBER 4.—**Devizes.**—WARDS, ETC.—Erection [illegible] alterations and additions to the existing buildings at the Cottage Hospital. Plans and specifications with the architect, Mr. A. J. Randell, M.S.A., 4, St. John-street, Devizes.

SEPTEMBER 4.—**Glasgow.**—OFFICES.—The Caledonian Railway Company invite tenders for the extension of the Company's head offices. Drawings seen at the office of the Company's Engineer, Buchanan-street Station, Glasgow. Quantities on deposit of 2*l.* 2*s.*

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

SEPTEMBER 5.—**Abertillery.**—ADDITIONS, ETC.—Alterations and additions to the passenger station, for the Great Western Railway. Plans and specification seen, and quantities from the Engineer, at Newport Station.

SEPTEMBER 5. — **Birmingham.** — STABLE.—The Great Western Railway invite tenders for the erection of a stable at Hockley. Plans and specification seen, and quantities from the Engineer at Wolverhampton Station.

SEPTEMBER 5.—**Minehead.**—STABLE.—The Great Western Railway invite tenders for the erection of a stable at Minehead, Somerset. Plans and specification seen, and quantities from the Engineer, at Taunton Station.

SEPTEMBER 6.—**Lichfield.**—BARRACKS.—Erection of No. 8 barrack blocks, including drainage, water mains, etc., at the Whittington Heath Barracks, Lichfield, in the Northern Command. Plans, specification, and conditions of contract at the Office of the Director of Barrack Construction, 80, Pall Mall, London, S.W., or at the Barrack Construction Office, Whittington Heath Barracks, Lichfield. Quantities from the Director of Barrack Construction. Deposit of 10s.

SEPTEMBER 6. — **Norwich.**—GALLERY.—Erection of a gallery at the Castle Museum. Plans and specification, quantities, with Mr. A. E. Collins, A.M.Inst.C.E., City Engineer, Guildhall, Norwich. Deposit of 5*l.*

SEPTEMBER 9. — **Tewkesbury.**—ALTERATIONS.—For alterations to property in Chance-street. Drawings seen, and specifications from Mr. W. Ridler, Borough Surveyor, Station-street, Tewkesbury.

SEPTEMBER 16.—**Chester.**—HOUSES, ETC.—Erection of three single dwelling-houses and three sets of farm buildings, on the Sound Estate, near Nantwich. Plans seen and specifications and quantities, on deposit of 1*l.*, from the C.C. Land Agent, County Estate Office, 49, Northgate-street, Chester.

SEPTEMBER 16.—**Chester.**—HOUSE, ETC.—Erection of one single dwelling-house and one set of farm buildings, on the Moston Estate, near Sandbach. Plans seen, and specifications and quantities, on deposit of 1*l.*, from the C.C. Land Agent, County Estate Office, 49, Northgate-street, Chester.

* SEPTEMBER 21.—**Maldon.**—POLICE-STATION.—The County of Essex Standing Joint Committee invite tenders for a police-station. See advertisement in this issue for further particulars.

* SEPTEMBER 25. — **Glasgow.** — EXTENSION OF POST-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for extension of General Post Office. See advertisement in this issue for further particulars.

* OCTOBER 2. — **Lingfield.** — DRILL-HALL.—The Surrey Territorial Force Association invite tenders for new drill-hall premises. See advertisement in this issue for further particulars.

NO DATE.—**Aberford.**—CHAPEL.—Erection of a new chapel. Mr. H. Ascough Chapman, F.R.I.B.A., architect, Prudential-buildings, Leeds.

NO DATE.—**Barnsley.**—SHOPS.—Erection of four shops. Mr. Ernest W. Dyson, architect, 10, Regent-street, Barnsley.

NO DATE.—**Bradford.**—HOUSES.—Erection of pair of semi-detached houses in Straightacres-lane, Park-road, Eccleshill. Mr. J. Harper Bakes, M.S.A., architect and surveyor, Calverley-chambers, Victoria-square, Leeds.

NO DATE.—**Brighton.**—SCHOOL.—Erection of a grammar school at the junction of Old Shoreham and Dyke roads. Drawings and specification by Mr. S. B. Russell, F.R.I.B.A., 11, Gray's-inn-square, London, W.C., and quantities by Mr. Simeon Hunt, quantity surveyor, Brighton. Deposit of 2*l.* 2s.

NO DATE.—**Cantley.**—OFFICES.—Reconstruction of the out-offices at the National School. Plans and specification with the architect, Mr. J. Simmons, 10, High-street, Doncaster

NO DATE. — **Halifax.** — ALTERATIONS.—For the alterations to farm buildings. Architects, Messrs. J. F. Walsh, F.S.I., and Graham Nicholas, F.R.I.B.A., 10, Harrison-road, Halifax.

NO DATE.—**Hawsker Mill.**—COTTAGES.—Conversion of outbuildings into two cottages. Plans and specifications with Mr. Jas. Maxwell McGee, Hawsker, near Whitby.

NO DATE.—**Seaforth.**—HEADQUARTERS.—Erection of new headquarters for the 7th Battalion The King's (Liverpool Regiment), in Seaforth. Plans from Mr. H. L. Beckwith, architect, 3, Cook-street, Liverpool, on deposit of 2*l.*

NO DATE.—**Torquay.**—GRAND HOTEL.—Erection of a new wing, structural alterations, etc., at the hotel. Quantities, on deposit of 5*l.* 5s., from Messrs. Waymouth, Johnson, & Webber, architects, Tormoham Manor Office, Torquay.

NO DATE. — **West Hartlepool.** — ADDITIONS, ETC. — Alterations and additions to cemetery buildings at Wheatley-hill Plans seen, and quantities from Mr. J. Garry, F.R.I.B.A., 47, Church-street, West Hartlepool.

NO DATE.—**Whitby.**—VILLAS.—Erection of a pair of villas in Ruswarp-lane. Names to Mr. Harold G. Walker, architect and surveyor, Golden Lion Bank, Whitby.

NO DATE.—**Wombwell.**—HOUSES, ETC.—Erection of two dwelling-houses and a shop. Mr. Jno. Robinson, architect and surveyor, Wombwell.

ENGINEERING, IRON, AND STEEL.

AUGUST 19.—**Helston.**—PARK, ETC.—Construction of a lake and park. Plans and specifications with the Borough Surveyor, Town Hall, Helston, Cornwall.

AUGUST 19.—**Radnor.**—BRIDGE.—Construction of a small bridge over stream crossing the main road near the village of Bleddfa. Drawings seen, and specification, quantities, and forms of tender from Mr. T. L. Wishlade, Surveyor, Penybont, Radnorshire.

AUGUST 21.—**Perth.**—BRIDGES.—Renewal of the superstructure of the bridge over the River May at Forteviot, near Perth, for the Caledonian Railway Company. Drawings seen at the office of the Company's Engineer, Buchanan-street Station, Glasgow. Deposit of 2*l.* 2s.

AUGUST 23.—**Balrothery, Ireland.**—RESERVOIR, ETC.—Construction of a storage reservoir, stream diversion, cast-iron pipe line, service reservoir, distribution system, and other works. Plans and specification with Mr. P. H. McCarthy, B.E., M.Inst.C.E.I., 39, Westmoreland-street, Dublin, and quantities on deposit of 5*l.* 5s.

AUGUST 31.—**London.**—TANK.—Construction of a steel water tank at the Union Infirmary, Whipps Cross-road, Leytonstone, N.E. Specification and drawings prepared by Mr. Francis J. Sturdy, F.R.I.B.A., and Mr. Arthur T. Walmisley, M.Inst.C.E., from Mr. Thomas Smith, Clerk, Board-room, Union-road, Leytonstone, N.E.

SEPTEMBER 4.—**Porthcawl.**—RESERVOIR, ETC.—Construction of two filter beds and a service reservoir. Specification and plans by Messrs. John Taylor, Sons, & Santo Crimp, civil engineers, Caxton House, Westminster. Deposit of 5*l.*

SEPTEMBER 6. — **Wicklow.** — BRIDGES. — The Dublin and South-Eastern Railway Company invite tenders for the reconstruction of three bridges carrying the railway over the Ovoca and Aughrim Rivers, near Woodenbridge, Co. Wicklow. Plans and specification seen, and quantities from the Chief Engineer, No. 52, Westland-row, Dublin.

NO DATE. — **Blyth.** — PLANT.—Erection of a pumping plant at Hepscott Colliery. Mr. R. Grieves, Surveyor to the Council, Blyth, Northumberland.

NO DATE. — **Northfleet.**—LIGHTING.—Erection of a lighting installation at the club. Specifications and form of tender from Mr. W. Howard Brown, A.M.Inst.E.E., Park House, Gravesend, on deposit of 5s.

FURNITURE, PAINTING, MATERIALS, etc.

AUGUST 19.—**Blairgowrie.**—PAINTING.—For repainting the steel and ironwork of Caputh Bridge. Specification from Mr. G. Wyllie, Road Surveyor, Blairgowrie.

AUGUST 21. — **Chartham.** — PAINTING. — For painting at the Council school. Specifications by the architect, Mr. W. H. Robinson, Caxton House, Westminster, seen with Mr. F. S. Cloke, Sandwich.

AUGUST 21. — **Faversham.** — DECORATING. — Cleaning and decorating, etc., at the various schools. Specifications from Messrs. E. Pover & Son, architects, Faversham.

AUGUST 21.—**Shoreham.**—REPAIRS, ETC.—For painting and repairs to the infants' Council school. Specifications by the Committee's Architect, Mr. Wilfrid H. Robinson, of Caxton House, Westminster.

AUGUST 22. — **Manchester.** — PAINTING.—For painting at new Islington Public Hall. Specification from the City Architect, Town Hall, on deposit of 10s. 6d.

AUGUST 22. — **Manchester.** — PAINTING.—For painting at the West Gorton, Cheetham, and Newton Heath Branch Libraries. Specification from the City Architect, Town Hall. Deposit of 10s. 6d.

AUGUST 22.—**Poole.**—PAINTING.—For painting various buildings, etc., in the Poole Park. Mr. S. J. Newman, F.R.I.B.A., Municipal Buildings, Poole.

AUGUST 24.—**Brentwood.**—PAINTING, ETC.—Repairs and repainting of the fire-station and depôt. Specification with Mr. A. J. Meeson, Surveyor, Town Hall, Brentwood.

AUGUST 26.—**Cardiff.**—PAINTING, ETC.—For internal painting of the hospital and probationary wards at Headquarters' Homes, Ely. Specification from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

AUGUST 26.—**Whittingham.**—PAINTING, ETC.—For painting, etc., of the County Asylum. Mr. W. N. Baldwin, Clerk and Steward, County Asylum, Whittingham, Preston.

AUGUST 28. — **London.**—FENCING.—Erection at Grovelands Park, Winchmore Hill, of Jarrah timber fencing and unclimbable wrought-iron railing. Specification and particulars from the Council's Surveyor, Mr. C. G. Lawson, C.E., Council Offices, Palmer's Green, N. Deposit of 2*l.*

* SEPTEMBER 2. — **Battersea.** — ECONOMISER.—The Battersea B.C. invite tenders for the erection of an economiser for the Public Baths. See advertisement in this issue for further particulars.

* SEPTEMBER 14.—**London, W.**—WARD LOCKERS.—The Guardians of the Parish of Kensington invite tenders for fifty Canadian birchwood ward lockers for their Infirmary, Marloes-road, W. See advertisement in this issue for further particulars.

ROADS, SANITARY AND WATER WORKS.

AUGUST 19.—**Radcliffe.**—SEWERAGE.—Construction of storm-water and humus tanks, conduits, etc. Drawings and specifications seen, and quantities, on deposit of 1*l.* 1s., from Mr. W. L. Bothwell, Engineer, Council Offices, Radcliffe.

AUGUST 21. — **Portsmouth.** — MATERIALS.—Supply of granite, etc. Specification from Mr. G. Hammond Etherton, Town Clerk, The Town Hall, Portsmouth.

AUGUST 23.—**Bonchurch.**—DRAIN, ETC.—For laying a surface-water drain between Bonchurch-road and the foreshore. Plans and specification, and quantities from Mr. T. R. Saunders, A.M.Inst.C.E., Belgrave-chambers, Ventnor, Isle of Wight. Deposit of 1*l.* 1s.

AUGUST 24.—**Newport.**—STREETS.—For various street works. Plans and specifications seen, and quantities, on deposit of 1*l.* 1s., from the Borough Engineer, Town Hall, Newport

AUGUST 26.—**Burnley.**—SETTS.—Supply of granite setts. Forms of tender from Mr. H. Pritchard, Surveyor, 15, Nicholas-street, Burnley.

AUGUST 28. — **Farnborough.** — STREETS.—For private street improvements. Forms of tender, etc., from Mr. J. E. Hargreaves, Surveyor, Town Hall, Farnborough, Hants.

AUGUST 29.—**Banbury.**—STONE.—Supply of unbroken Hartshill stone. Mr. E. Lamley Fisher, Clerk, Union Offices, Banbury.

AUGUST 29.—**Birkenhead.**—WALLS, ETC.—Formation of paths and erection of boundary walls. Plans and specifications seen, and quantities from Mr. C. Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead, on deposit of 10s.

AUGUST 29.—**Blackpool.**—PIPES.—The Fylde Water Board invite tenders for the supply of cast-iron pipes. Specification and quantities from Mr J. Cook, Engineer, Sefton-street, Blackpool.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
[illegible] GOVERNMENT BUILDING WORKS	Govt. of New South Wales	1,000*l.* per annum	[illegible]
ASSISTANT CIVIL ENGINEER	Admiralty	200*l.* per annum	No date.

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	Aug. 30
*BUILDERS' MERCHANT'S STOCK—At Bailey's Repository, Great Ormond-street, W.C.	Skelding & Holland	Aug. 24
*CONTRACTOR'S STOCK AND PLANT, NORTHAMPTON—On the Premises	Woods & Co.	Sept. —

LAW REPORT—*continued from page 201.*

of the witness by Mr. Salter as to the items in the variation account, regarding the gardener's cottage, the witness stated that Professor Waldstein had sold the old material upon the site for an agreed sum to Mr. Minter.

That of itself would not justify Mr. Minter using old stuff as new?—Oh, yes, it would, if he had the architect's permission to use it.

Do you seriously suggest that because these old bricks had become the property of Mr. Minter by purchase, and he was granted permission to use them by the architect, that he was entitled to use these old bricks and be paid for them as though they were new bricks?

The witness replied in the affirmative, adding that they were exceptionally good bricks.

Were these bricks fifty or sixty years old?—I could not say what the exact age of them was, but I should say they would not be more than fifty years old.

If a builder buys old material, as old material, from a customer, and sells it back to the customer as new material, it would be a good thing for the builder?

The witness replied that he did not think that could be said in the present instance, because Mr. Minter had given a good price for the material.

Do you say that because a builder gives a good price for the material he is entitled to sell it back to you as new?

The witness replied that that was his opinion, when the old material was properly valued. In some cases old material might be really better than new. In the present instance the old bricks were exceptionally good.

Referring to the estimate by the witness of the sum due to Mr. Minter for the flooring in the coach-house, witness stated that he thought Mr. Minter was entitled to be paid that sum, having regard to the fact that the flooring in the coach-house was only a small item, which was outside the house altogether, and was not included in the contract. He had applied the same principle generally as to the lodges and outbuildings, as all these particular works were not contained in the principal specification and contract. He did not consider the contract itself applicable to the outbuildings, and his view was that Mr. Minter was not bound by the contract in respect of them.

The Official Referee: Then I suppose you will also say that Mr. Waldstein was not bound either?—Well, I looked at it, sir, in the way that if a man has something he is expected to pay for it.

Cross-examination continued.

In the work on the stables old material was all valued as new.

Referring to the range which Mr. Minter had put in in the stables, the witness stated that Mr. Minter was entitled to the cost of the range, his fair profit, and the cost of fixing.

Is he not obliged to show you what he gives for the range?—It is not necessary in a case like that. I daresay Mr. Minter has the invoice, and is prepared to show it to you.

At the conclusion of the evidence, Mr. Clavell Salter addressed the learned Official Referee on behalf of Professor Waldstein, dealing exhaustively and in great detail with all the points raised in the case.

The learned Counsel had not concluded his address when we went to press.

LONDON COUNCILS.

Barnes.—Plans have been passed as follows by the Urban District Council:—Additions, West Lodge, Mortlake-road, Messrs. Boore & Parker; motor garage, 43, Madrid-road, Mr. A. Harvey; four houses, Melville-road, Mr. C. J. Kerven.

Bethnal Green.—Valuable work (says Dr. G. P. Bate, the Medical Officer of Health, in his annual report) has been carried out under Section 15 of the Housing and Town Planning Act, 1909. This section gives power to a local authority to deal with landlords who fail to keep houses of a gross rental not exceeding 40*l.* per annum in such a state as to be reasonably fit for human habitation. The powers previously enjoyed in this respect were incomplete. Fifteen notices, under Section 15 of the new Act, were served during the twelve months, and at the end of the year the requirements of twelve of those notices had been complied with, and in three the necessary works were in hand.

Westminster.—Dr. F. J. Allan, the Medical Officer of Health, in his annual report, refers to the fact that as regards drainage, etc., proceedings were taken in only one case during the year, when a fine of 10s. and 23s. costs was imposed for carrying out drainage works in an improper manner. Legal proceedings in connexion with water supply were taken in six cases. Additional sources of water supply on the upper floors of tenement houses [illegible] the Council has not asked for more than one tap between the first and second floors, but the owners in some cases laid on water to each floor. Several owners of property, as a result in the alteration in the method of charging for water, sunk wells. Analyses of the water obtained had been made, and there are curious variations in the water raised in different localities. Water, which is extremely soft, has a tendency at first to act on lead pipes, but after a time they become coated with a protective "skin." Analyses taken some time after the wells had been in use showed that the waters contained no lead. Complaints had occasionally been made by consumers of a white deposit of the salts in the water. The great increase of these deep wells in recent years must have a marked effect upon the underground water in the chalk under London, and as the level sinks, such wells will have to be sunk deeper. The rate at which the level is falling has been estimated at from two to three feet a year, and eventually it may not pay to sink wells to the depth necessary to obtain a supply; possibly, moreover, the quantity of water in this underground reservoir is not inexhaustible. The excavations in connexion with the new St. Anne's Parish Hall, in Dean-street, led to the discovery under the pavement of a well 73 feet deep, containing 57 feet of water. This was the source of supply of the old parish pump, which stood in front of the Vestry Hall. Its use was discontinued in 1866, at the time of the cholera visitation, as it was found that many of these shallow wells were contaminated by soakage from cesspools, and thus became a means of spreading the disease.

OBITUARY.

Josef Israels.

The famous Dutch artist, Josef Israels, who died at The Hague a few days ago, was born at Groningen on January 27, 1824. After leaving school his father took him into his employ, that of a money changer, but observing his talent for drawing, decided to allow his son to follow an artistic career. He placed him at first under two local artists, Buijs and van Wicheren, and then sent him to Amsterdam, where he studied under Jan Kruseman. In 1845 he proceeded to Paris, studying under Picot, and at the Ecole des Beaux Arts. He returned to Holland in 1870, but his first artistic venture, a series of historical pictures, proved a failure. His defeat, coupled with the privations he had been forced to undergo in his student days, brought on an illness which necessitated a stay at the seaside. He went to Zandvoort, near Haarlem, and devoted himself to depicting the everyday life of the fisher-folk of the district. With these paintings he rapidly acquired a reputation which has since never waned. He received in the course of his career many distinctions. He earned several medals at Paris exhibitions, was an Officer of the Legion of Honour, a Commander of the Order of the Lion of the Netherlands, and received the Cross of the Belgian Order of Leopold. On his 80th birthday some of his English admirers presented him with 20,000 gulden, which he devoted to the fund raised in Holland to provide a suitable repository for Rembrandt's "Night Watch." In 1906 he was elected a corresponding member of the Royal Academy. The distinguishing feature of his work was the intimate and complete harmony between his technique and the spirit of his conceptions, probably in the works of no other modern painter, save Jean François Millet, does the technical mode of presenting the conception go so far towards enhancing the impression created.

PATENTS.

APPLICATIONS PUBLISHED.*

18,329 of 1910.—Colin Henry Adams: Ratchet tool for use as a spanner, drill, or lifting jack.

19,299 of 1910.—Mary Ewart Cambell, Walter Cambell, and Alexander Pryde: Building blocks.

21,601 of 1910.—Edgar Newton: Means for connecting the water supply and fixing in position of bends, sockets, unions, or waste pipes to sinks, baths, basins, and the like.

22,301 of 1910.—William Edward Lake (Thomas R. Beggs, Faucet and Valve Company): Faucets and valves.

22,519 of 1910.—Friedrich Schol[illegible]: Manufacture of tubular and like sections of chimney flues.

23,212 of 1910.—Reuben John Edgington: Sliding window-sashes.

24,321 of 1910.—Michael Power: Window-blind fittings.

24,555 of 1910.—Thomas Sanders: Casement fasteners and the like.

27,088 of 1910.—Samuel Henry A[illegible]: Manhole covers, surface boxes, gully grate frames, and the like.

27,494 of 1910.—David Howells: Method of utilising waste material for the manufacture of concrete and like articles.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

August 1.—By SELDWICK, SON, & WEALL.
Leavesden, Herts.—Six cottages and smithy, f. £430
By ROBT. BOND & SONS.
Snape, Suffolk.—Freehold farms, etc., 675 acres 7,482
August 2.—By MADDISON, MILES, & MADDISON.
Hickling, Norfolk.—Arable land, 38 acres, f. 835
By MORRIS, MARSHALL, & POOLE.
Bishops Castle, Salop.—Whitcot Stile and Oldelo-Leys Farms, 246 acres, f. 8,055
August 3.—By S. WALKER & SON.
Coulsdon, Surrey.—8 to 14, Mount Pleasant Villas, f., w.r. 154*l.* 14*s.* 1,200
Hooley, Surrey.—3 to 8, Hooley Villas, f., w.r. 132*l.* 12*s.* 940
August 4.—By GILLART & SON.
Carno, Montgomery.—Agricultural estate, 1,650 acres, f. 13,500

Contractions used in these lists.—**F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.**

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the prepaid rate of 19s. per annum, with delivery *by Friday Morning's Post* in London and its suburbs.

To Canada, post-free, 21s. 8d. per annum; and to all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

PRICES CURRENT OF MATERIALS

*** **Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.**

BRICKS, &c.

Per 1000 Alongside, in River.	£ s. d.
Best Stocks	1 13 0
Picked Stocks for Facings	2 7 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Flettons	1 9 0	Double Headers	13 7 6
Best Fareham Red	3 12 0	One Side and two Ends	17 7 6
Best Red Pressed Ruabon Facing	5 0 0	Two Sides and one End	18 7 6
Best Blue Pressed Staffordshire	3 15 0	Splays & Squints	15 17 6
Do. Bullnose	4 0 0	Best Dipped Salt Glzd. Str'tch'rs	10 17 6
Best Stourbridge Fire Bricks	3 14 0	Headers	10 7 6
GLAZED BRICKS.		Quoins, Bullnose, and Flats	14 7 6
Best White and Ivory Glazed Stretchers	10 17 6	D'ble Stretchers	16 7 6
Headers	10 7 6	Double Headers	13 7 6
Quoins, Bullnose, and Flats	14 7 6	One Side and two Ends	17 7 6
D'ble Stretchers	16 7 6	Two Sides and one End	18 7 6
		Splays & Squints	15 17 6

Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 9	per yard, delivered.
Thames Ballast	5 3	" "
Best Portland Cement	29 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. 6d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½

STONE (*Continued*).

Per Ft. Cube, delivered at Railway Depôt.

	s.	d.		£	s.
Ancaster in blocks..	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6	Red Mansfield Freestone	2	4
Greenshill in blocks	1	10	Talacre & Gwespyr Stone	2	8
Darley Dale in blocks	2	4			
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.

	s.	d.
Scappled random blocks	2	10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	
6 in. rubbed two sides ditto, ditto	2	6	
6 in. rubbed two sides slabs (random sizes)	0	11½	
3 in. sawn two sides slabs (random sizes)	0	7½	
2 in. to 2½ in. sawn one side slabs (random sizes)	0	6	
1½ in. to 2 in. ditto, ditto			

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	3	0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6	20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	13	17	6	20×12 ditto	18	7	6
20×10 1st quality ditto	13	0	0	18×10 ditto	13	5	0
20×12 ditto	13	15	0	16×8 ditto	10	5	0
16×8 ditto	7	5	0	20×10 permanent green	11	12	6
22×10 best blue Portmadoc	12	12	6	18×10 ditto	9	12	6
16×8 ditto	6	12	6	16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Do. Ornamental (per 1000)	52	6
Hip and Valley (per doz.)	3	7	Hip and Valley (per doz.)	4	0
Best Broseley (per 1000)	50	0	Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6
Do. Ornamental (per 1000)	60	0	Do. Ornamental (per 1000)	50	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz.)	3	6
Best "Hartshill" brand, plain sand-faced (per 1000)	50	0	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. pressed (per 1000)	47	6	Hand-made sand-faced (per 1000)	45	0
			Hip (per doz.)	4	0
			Valley (per doz.)	3	6

WOOD.

BUILDING WOOD. At per standard.

	£	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	15	10	0
Deals: best 3 by 9	13	10	0	14	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less thn best.		
Battens: seconds	0	10	0	"	"	
2 in. by in. and 2 in. by 6 in.	9	10	0	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	10	0	0
Foreign Sawn Boards—						
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	"		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft.					
	5	0	0	5	10	0
Seconds	4	10	0	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	3	10	0
Swedish balks	2	12	6	3	0	0
Pitch-pine timber (30 ft. average)	4	10	0	5	5	0

JOINERS' WOOD. At per standard.

White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	25	10	0
3 in. by 9 in.	22	10	0	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	18	0	0
Second yellow deals, 3in. by 11in.	19	0	0	20	0	0
" " 3 in. by 9 in.	18	0	0	19	10	0
Battens, 2½ in. and 3in. by 7 in.	14	0	0	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	22	10	0
Do. 3 in. by 9 in.	18	10	0	19	10	0
Battens	14	0	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	10	0	17	10	0
Do. 3 in. by 9 in.	15	0	0	16	0	0
Battens	11	10	0	12	10	0
Third yellow deals, 3in. by 11 in.	13	10	0	14	10	0
Do. 3 in. by 9 in.	13	0	0	14	0	0
Battens	10	10	0	11	0	0
White Sea and Petersburg—						
First white deals, 3 in. by 11 in.	15	0	0	16	0	0
" " 3 in. by 9 in.	14	0	0	14	10	0
Battens	11	10	0	12	10	0
Second white deals, 3in. by 11in.	14	0	0	15	0	0
" " 3 in. by 9 in.	13	0	0	14	0	0
Battens	10	10	0	11	0	0
Pitch-pine: deals	19	0	0	21	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.		
Oddments	32	0	0	"		
Seconds, regular sizes	33	0	0	"		
Oddments	28	0	0	"		
Kurai Pine—Planks per ft. cube.	0	3	6	0	5	0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—

	£	s.	d.	£	s.	d.
Dantzic and Stettin Oak Logs—Large, per ft. cube	0	4	0	0	5	5
Small " "	0	2	6	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	6	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	0	0	9½
¼ in. do. do.	0	0	7	—		
Dry Mahogany—Houndras, Tabasco, per ft. super. as inch	0	0	10	0	1	1
Selected, Figury, per ft. super. as inch	0	1	6	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	0	1	0
Teak, per load	18	0	0	22	0	0
American Whitewood planks, per ft. cube	0	4	0	0	5	0
Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	0	16	6
in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	0	13	6
1 in. by 7 in. " "	0	14	0	0	18	6
¾ in. by 7 in. white " "	0	10	0	0	11	0
¾ in. by 7 in. " "	0	12	9	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton.					
	£	s.	d.	£	s.	d.
Rolled Steel Joists, ordinary sections	7	0	0	7	10	0
Compound Girders, ordinary sections	9	0	0	10	0	0
Steel Compound Stanchions	11	0	0	13	0	0
Angles, Tees, and Channels, ordinary sections	9	0	0	10	0	0
Flitch Plates	9	0	0	9	10	0
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0	8	10	0

METALS.

	Per ton, in London.					
	£	s.	d.	£	s.	d.
IRON—						
Common Bars	8	10	0	9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0	9	5	0
Staffordshire "Marked Bars"	10	10	0	—		
Mild Steel Bars	8	15	0	9	5	0
Hoop Iron, basis price	9	5	0	9	10	0
" " Galvanised	17	0	0	—		

(*And upwards, according to size and gauge.)

Sheet Iron Black—						
Ordinary sizes to 20 g.	9	15	0	—		
" " 24 g.	10	15	0	—		
" " 26 g.	12	5	0	—		
Sheet Iron, Galvanised, flat, ordinary quality—						
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0	—		
Ordinary sizes to 22 g. and 24 g.	15	10	0	—		
" " 26 g.	16	10	0	—		
Sheet Iron, Galvanised, flat, best quality—						
Ordinary sizes to 20 g.	18	0	0	—		
" " 22 g. and 24 g.	18	10	0	—		
" " 26 g.	20	0	0	—		
Galvanised Corrugated Sheets—						
Ordinary sizes, 6ft. to 8ft. 20 g.	14	10	0	—		
" " 22 g. and 24 g.	14	15	0	—		
" " 26 g.	16	5	0	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	0	0	—		
Best Soft Steel Sheets, 2 g. & 24 g.	13	0	0	—		
" " " 26 g.	15	0	0	—		
Cut Nails, 3 in. to 6 in.	10	10	0	11	0	0

(Under 3 in., usual trade extras.)

LEAD, &c.

	£	s.	d.	£	s.	d.
LEAD—Sheet, English, 4lb. and up	17	5	0	—		
Pipe in coils	17	15	0	—		
Soil pipe	20	15	0	—		
Compo pipe	20	15	0	—		
ZINC—Sheet—	In casks of 10 cwt.					
Vielle Montagne	32	15	0	—		
Silesian	32	5	0	—		

Zinc, in bundles, 1s. per cwt. extra.

COPPER—						
Strong Sheet per lb.	0	1	0	—		
Thin "	0	1	1	—		
Copper nails "	0	0	10	—		
Copper wire "	0	0	10	—		
BRASS—						
Strong Sheet "	0	0	11	—		
Thin "	0	1	0	—		
TIN—English Ingots "	0	1	11	—		
SOLDER—Plumbers' "	0	0	8½	—		
Tinmen's "	0	0	11	—		
Blowpipe "	0	1	2	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
" fourths	1½d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
26 oz. ¼ thirds	4½d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

⅛ Hartley's	2d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
3/16 "	2½d.	Ditto, tinted	5d.
¼ "	2½d.		

* Not less than three crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	3	6
" " " in barrels	"	0	3	7
" " " in drums	"	0	3	9
Boiled " in barrels	"	0	3	9
" " in drums	"	0	4	0
Turpentine in barrels	"	0	3	3
" in drums	"	0	3	5
Genuine Ground English White Lead, per ton		21	10	0
Red Lead, Dry	"	20	0	0
Best Linseed Oil Putty	per cwt.	0	11	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ANSTEY.—For proposed new Council school, for Leicestershire County Council Education Committee. Mr. A. H. Hind, A.R.I.B.A., Grey Friars, Leicester. Mr. Ernest G. Fowler, surveyor, County Education Office, Leicester. Quantities by the Surveyor :—

H Toone & Warrington	£2,365	16	11
G. Toone & Sons	2,154	9	0
W. G. Simons	2,119	0	0
B. Shipman	2,097	12	6
W. Stanger	£2,073	0	0
F. Sleath	2,016	0	0
J. Chapman, Rutland-avenue, Leicester* ‡	1,993	0	0

‡ Tender accepted subject to reductions.

CHESTERFIELD.—For erection of a cottage, stable, etc. :—

J. Wright	£654	15	0
S. Brailsford	653	18	0
G. Keeley	650	0	0
Collis & Sons	638	0	0
G. F. Kirk	590	0	0
Holmes & Sons	570	0	0
W. Tomlinson	£556	0	0
D. Brown	554	0	0
Marsden Bros.	520	3	5
S. Wheatcroft, Walton-road, Chesterfield*	515	18	1

LONDON.—For the erection of a new police-station at Streatham. Mr. J. Dixon Butler, F.R.I.B.A., Architect and Surveyor to the Metropolitan Police, New Scotland-yard, S.W. Quantities by Messrs. Thurgood, Son, & Chidgey, 8, Adelphi-terrace, Strand, W.C. :—

D. W. Barker & Sons, Ltd.	£12,672	J. Grover & Son	£11,492
Rice & Son	12,291	Prestige & Co., Ltd.	11,490
J. Chessum & Sons	11,858	J. Mowlem & Co., Ltd.	11,490
W. H. Lorden & Son	11,842	F. & H. F. Higgs	11,451
J. Appleby & Sons	11,730	J. Smith & Sons, Ltd.	10,949
C. Ansell	11,678	Sabey & Son, Ltd.	10,753
Killby & Gayford, Ltd.	11,686	Patman & Fotheringham, Ltd.	10,738
		Godson & Sons	10,627

LONDON.—For redecoration and repairs, etc., for the Camden Brewery Company, Ltd. Mr. A. E. McEwan-Waghorn, Surveyor to the company, 8, King William-street, Charing Cross, W.C. :—

The "Market Tavern" public-house, York-road, St. Pancras, N.W.

J. Jauncey & Co. ..... £335 | C. J. Newby & Bros.* ‡ £228
C. J. Newby & Bros ... 259 |

‡ Revised estimate.

The "Lord Hamsden," Hampden-road, Holl way, N.

Green & Smith ..... £253 | C. J. Newby & Bros.* £220
W. S. Barton & Co. ... 229 |

The "Constitution" public-house, King's-road, St. Pancras, N.W.

Kirk & Randall ..... £274 | C. J. Newby & Bros.* £206
J. Jauncey & Co. ..... 298 |

The "British Queen" public-house, Ferdinand-street, Kentish Town, N.W.

Kirk & Randall ..... £325 | C. J. Newby & Bros.* £123
J. Jauncey & Co. ..... 223 |

The "Pomsford Arms" public-house, Malden-road, Kentish Town, N.W.

Kirk & Randall ..... £310 | C. J. Newby & Bros.* £157
J. Jauncey & Co. ..... 232 |

The "Dalby Tavern" public-house, Dalby-street, Kentish Town, N.W.

Kirk & Randall ..... £368 | C. J. Newby & Bros.* £188
J. Jauncey & Co. ..... 243 |

The "Duchess of Kent" public-house, Charlotte-street, N.

Gay Bros.* £81 10

The "Tufnell-park Hotel," Tufnell-park-road, N.

Kirk & Randall ..... £330 | Green & Smith* £179
C. J. Newby & Bros.... 198 | Dove Bros., Ltd. 174

The "Portland Arms" beer-house, Wandsworth-road, S.W.

Sheffield Bros. ..... £135 | W. S. Barton & Co.* £75
C. J. Newby & Bros.... 123 |

The "Britannia" public-house, Fairfax-road, Hampstead, N.W.

Kirk & Randall ..... £234 | C. J. Newby & Bros. £159
W. Easun ..... 206 | Dove Bros., Ltd.* 148

The "Admiral Nelson" public-house, Carlton Vale, Kilburn, N.W.

C. J. Newby & Bros. £262 0 | Green & Smith £188 17
J. Jauncey & Co. 256 0 | A. Bowler* 138 10
Dove Bros., Ltd.... 195 0 |

The "Wandsworth Bridge Tavern" public-house, Wandsworth Bridge-road, S.W.

Kirk & Randall ..... £586 | C. J. Newby & Bros. £369
Patman & Fothering ham ..... 399 | Dove Bros., Ltd * 325

The "Bird-in-Hand" public-house High-street, Hampstead, N.W.

Dove Bros., Ltd. ..... £225 | Green & Smith £198
W. & S. Barton & Co. 215 | C. J. Newby & Bros*.. 197

The "Enterprise" public-house, Chalk Farm-road, N.W.

Dove Bros., Ltd. ..... £182 | C. J. Newby & Bros .. £166
W. S. Barton & Co ... 172 | F. G. Gregory* 165

The "Lord Amberley" public-house, Amberley-road, Paddington, W.

Dove Bros., Ltd ..... £209 0 | H. C. Gray & Son‡ £162 6
C. J. Newby & Bros. 193 0 |

* Recommended for acceptance.

MARKET HARBOROUGH.—For new junior Council school, for Leicestershire County Council Education Committee. Mr. Ernest G. Fowler, Architect and Surveyor, County Education Office, Leicester :—

T. Hickman & Sons ..... £1,199 0 | E. Fox £1,139 10
G. Jarman & Sons 1,165 10 | J. Chapman, Rutland-avenue, Leicester* 1,093 0
F. J. Bradford ... 1,145 0 |

MERTON.—For erection of additional offices. Mr. G. Jerram, Borough Surveyor, Merton :—

F. G. Lawrence £1,354 10 | Burges & Sons ... £1,067 0
G. C. Wood & Sons 1,145 0 | T. Godwin 1,005 8
E. Peddle ..... 1,130 0 | F. & G. Foster ... 998 0
H. Hann ..... 1,113 0 | Smith & Sons ... 968 0
Sullock & Sons .... 1,100 0 | Pasterfield & English, Streatham* 932 0
Love & Co. 1,091 0
T Holloway 1,072 0

ROTTINGDEAN.—For erection of four receiving homes and infirmary. Mr. J. W. Hawker, architect, 3, North-street Quadrant, Brighton. Quantities by the surveyor :—

Rowland Bros. ..... £8,732 | A. N. Coles £7,964
W. Lawrence & Sons 8,228 | M. Martin, Eastbourne† 7,745
Saunders Bros. ..... 8,198 | Patrick‡ 7,698
Field & Cox ..... 8,100 |
Longley & Co. ..... 7,988 |

[† Provisionally accepted. ‡ Did not comply with conditions.]

SHREWSBURY.—For new water supply to Council Hall, with Maignen softening apparatus and fire hydrants. Messrs. Mark H. Judge, Son, & Hayler, architects and sanitary engineers, 7, Pall Mall, London :—

Exclusive of Supplying the Main.

W. H. Smith & Co. £637
Perkins Bros., Shrewsbury 532

For Supply of 1,894 yds. of 4-in. Main.

Clay Cross Co ..... £277 | R. Maclaren & Co. ... £254
Stavely Coal & Iron Co. 277 |

SOUTH HORNCHURCH. — For enlargement of school, for the Essex Education Committee (Romford District Sub-Committee). Mr. A. S. R. Ley, M.S.A., architect, 214, Bishopsgate, E.C. Quantities by Mr. J. B. H. Low, Q.S.A., 74, Duke-street, Chelmsford :—

Hawkey & Oldman ..... £2,132 0 | F. Willmot £1,689 0
McCormick & Sons 1,920 0 | Bruty & Son 1,650 0
J. Chessum & Sons 1,833 0 | Wells & Co. 1,630 0
J. S. Hammond & Son ..... 1,797 0 | F. & E. Davey 1,620 0
O. P. Drever ..... 1,757 7 | Dowsing & Davis 1,575 0
Brown Bros. ..... 1,739 0 | J. W. Trudgett ... 1,560 0
| G. Brown, Grays* 1,456 0
| A. H. Fryd‡ 1,370 0

[Architect's estimate, comparable with the above, £1,500]
‡ Withdrawn.

WEYMOUTH.—For erection of a secondary school. Messrs. Crickmay & Sons, architects, St. Mary-street, Weymouth, and 13, Victoria-street, Westminster, S.W. :—

C. J. Trask & Sons £7,298 15 0
Jesty & Baker 6,750 10 6
Playfair & Toole 6,447 0 0
J. A. Parsons & Co., Ltd. 6,253 15 0
T. Conway, Ltd. 6,248 0 0
Wort & Way 6,247 10 0
Wakeham Bros. 6,188 0 0
Jenkins & Sons, Ltd. 5,775 0 0
Pittard & Sons 5,649 0 0
H. Gough 5,337 0 0

Ham Hill Stone.
Doulting Stone.
Portland Stone.
The Ham Hill and Doulting Stone Co., Limited
(incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr. E. A. Williams, 16, Craven-street, Strand.

Grey Stone Lime,
GROUND LIME, WHITE CHALK LIME,
PORTLAND CEMENT,
PLASTER, SIRAPITE, AND SAND.
Delivered in truck loads to any Station, or by vans in London
ADDRESS: **JOSEPH S. PETERS.**
Works: MERSTHAM, SURREY. Tel. Merstham 9.
Depôt: 417, OLD KENT ROAD. Tel.: Hop 3081.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
LITHOGRAPHERS,
Employ a large and efficient Staff especially for Bills of Quantities, &c.
4 & 5, East Harding-st., Fetter-la e, E.C.

OGILVIE & CO., Telephone: DALSTON 1266
Many years connected with the late firm of W. H. LASCELLES & Co., Ltd. of Bunhill Row.
Amhurst Works, **DALSTON LANE, N.E.**
EXPERTS IN HIGH-CLASS JOINERY.
ALTERATIONS AND DECORATIONS. ESTIMATES FREE.

ASPHALTE
For Horizontal & Vertical Damp Courses.
For Flat Roofs, Basements, & other Floors.
The best materials and workmanship are supplied by
THE
French Asphalte Co.
Whose name and address should be inserted in all specifications.
For estimates, quotations, and all information apply at the Offices of the Company.
5, LAURENCE POUNTNEY HILL
CANNON STREET, E.C.

J. J. ETRIDGE, Jr.
SLATE MERCHANTS. LTD.
EXPERTS IN
SLATING, TILING.
BEST WORK ONLY.
Telephone 2685 Wall, or write
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

EWART'S
"EMPRESS"
Established 1834.
Telephone: 2570 North.
Cures in 19 cases out of 20.
Write to-day for Illustrated Catalogue Free to
EWART & SON Ltd.,
346-350, Euston Road, London, N.W.
SMOKE-CURE